TECHNOLOGY DEPARTMENT

FEBRUARY 1950

Flow

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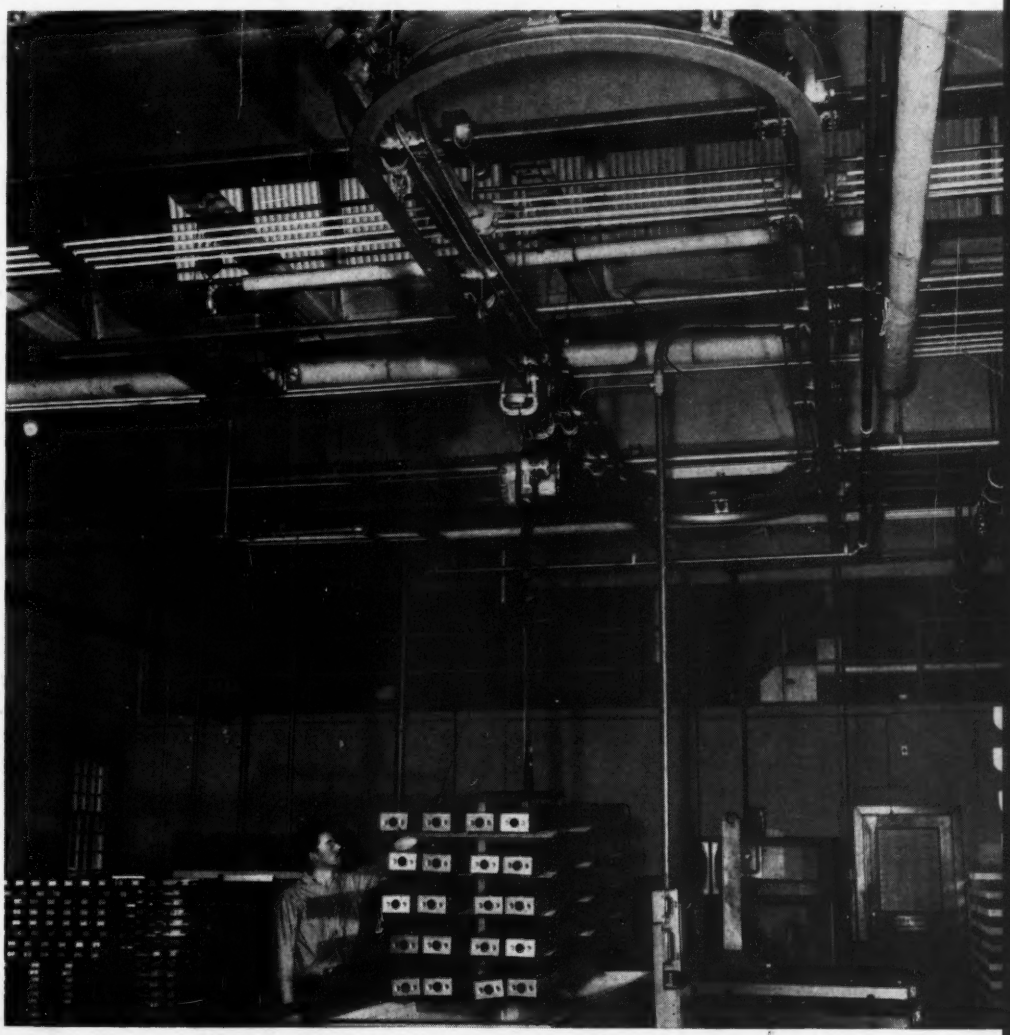
DETROIT

OF MATERIALS THROUGH PROPER HANDLING AND PACKAGING METHODS

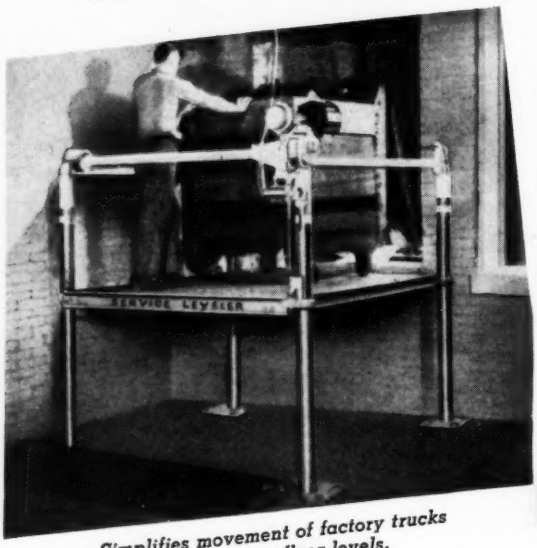


FLOW is not the official publication of any group, society or other special interest. Consequently its editorial pages are unbiased and undominated.

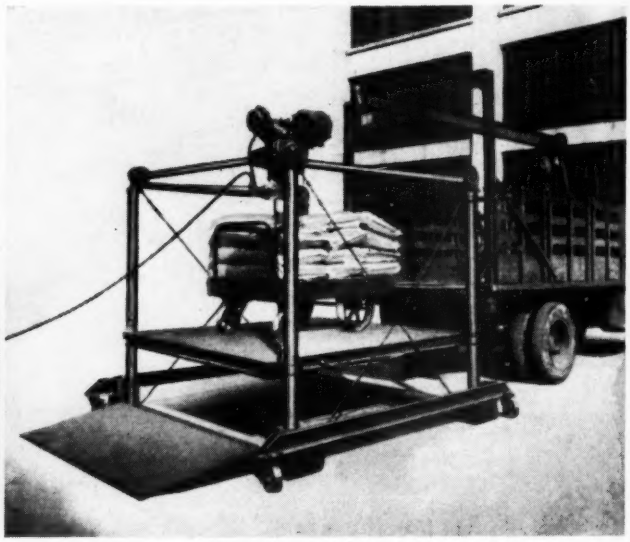
man-saver

Handles your heavy loads from level to level *Safely-Easily*

NEW SERVICE LEVELER



Simplifies movement of factory trucks between two floor levels.



Portable model at additional cost—Can be moved to facilitate loading and unloading of trucks in factory yard, etc.

Save your workers a lot of backaches—save time, trouble and money, by handling heavy loads from level to level with the new Service LEVELER. Dependably powered by a rugged, fully-enclosed, 1 H.P. motor, it lifts as much as 6,000 pounds as high as 5 feet... in less than a minute. Loads, machine and operator are fully protected under all operating conditions. Outstanding safety features include: easy manual control of starting and stopping at any height; automatic top and bottom limit stops; positive motor cut-off stops; centrifugal safety governor; slack cable shut-off; post guard rings. Here's a unit that can be installed anywhere in just a few hours at amazing low cost . . . requires no sub-surface installation . . . obsoletes slow, dangerous manual handling . . . pays for itself in a very short time. *Write for detailed specifications today.* ***Immediate Shipment.***

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Service Hand Lifter

Service Liftable

Service Electric Hydraulic Lifter

Service Hydraulic Leverlift

Service Leveler

SERVICE CASTER & TRUCK CORP. Executive Offices: Albion, Michigan
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SEE YOUR CLASSIFIED TELEPHONE DIRECTORY FOR NAME OF NEAREST SERVICE DISTRIBUTOR

Almost Unbelievable . . . BUT TRUE!

1942 19 1950 1950

NOT EVEN ONE
Transporter Electric Truck
HAS EVER WORN OUT*

SERVICE-PROVED FEATURES LIKE THESE TELL WHY!

CHASSIS Lightweight, yet engineered and built for full capacity loads. Ruggedness combined with extra power per weight ratio.

MOTOR Heavy duty industrial truck type, series wound DC motor with high starting torque and overload capacity. To insure extra long life, this motor is designed and built to Automatic's rigid specifications *especially* for the Transporter.

DRIVE UNIT Highly efficient double reduction unit. Driving wheel mounted on large diameter Timken tapered roller bearings. Entire drive mechanism and control unit are combined into an integral unit on large diameter steering turntable which revolves easily on ball bearings.

DRIVE CONTROL Simplified contactor control system with constant torque controller mechanically interlocked with double position brake. Contactor design prevents "shorting" motor and battery.

CONSTRUCTION Main frame composed of deep sectioned steel members. Sturdy one piece formed steel lift platform or heavy formed steel pallet forked frames are all-welded reinforced construction.

ELECTRICAL WIRING No grounded circuits. Two wire system same as used on larger electric industrial trucks. Does not utilize the frame of the Transporter to complete the electrical circuit.

SAFETY Transporter carries Underwriters' Laboratory seal.

:- Yes, it's a fact! Automatic Electric Transporters give years and years of trouble-free material handling performance because they're *planned* to do that kind of a job.

In design, precision engineering, and built-for-stamina ruggedness, they STAND UP . . . for years and years. American industry will tell you this is so. Because they have been industry tested since 1942. Many do 'round the clock, never-failing 24-hour service.

Many exclusive features *found in no other material* handling truck, contribute to the remarkable material handling record thousands and thousands of Transporters have made . . . a record all the more astounding when you consider that **to our knowledge, no Transporter *has ever completely worn out!*

Its finger-tip control moves tons and tons of material at 50% to 75% savings over manual handling. Its low electric charging cost and minimum of moving parts to wear out, make Transporter industry's best value for your money. Investigate! Mail the coupon.

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Send me complete facts and Free Catalog describing long-life Electric Transporter and how it can cut my handling costs 50% to 75%.

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By.....*Position*.....

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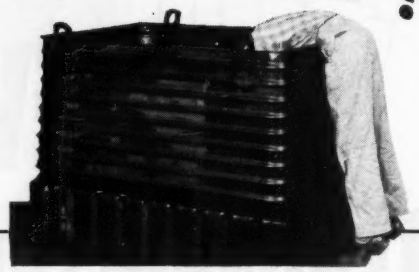
City.....*Zone*.....*State*.....

Do your workers have "THE BENDS"?

Production slows down and you lose money when assembly-line workers have to bend over to reach for parts.

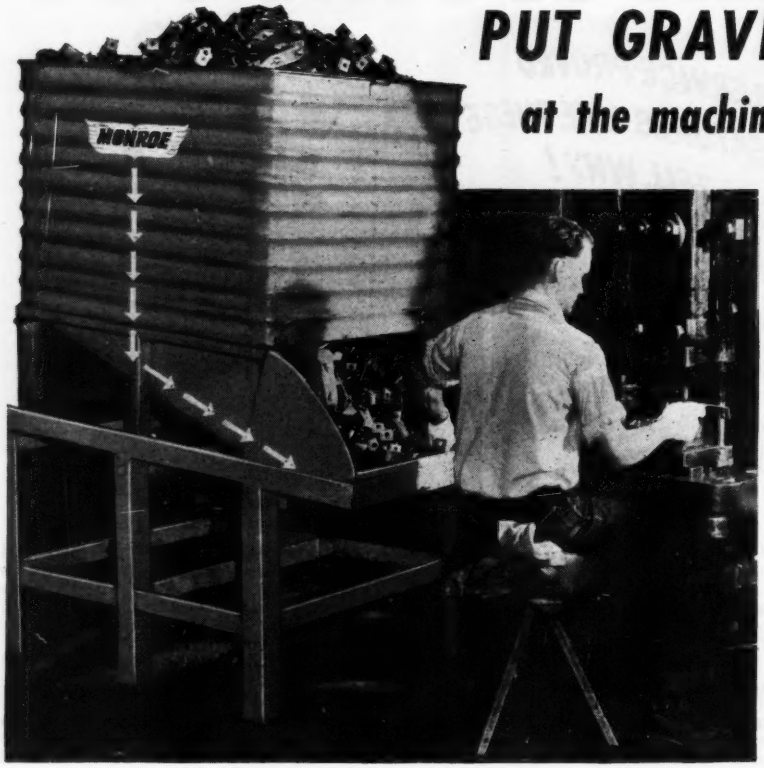
You can eliminate this waste motion, cutting labor and handling costs as much as 20%, with Monroe Drop-Bottom Skid Boxes.



MONROE DROP-BOTTOM SKID BOXES

PUT GRAVITY TO WORK

at the machine—on assembly lines



Gravity-flow from slanting floor of the Monroe Drop-Bottom Skid Box keeps stampings, castings and other small parts always accessible in waist-high tray of matching work stand.

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Monroe Drop-Bottom Boxes can be used as conventional skid boxes or easily moved on or off separate work stand by ordinary high lift trucks.

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Monroe Drop-Bottom Skid Boxes and separate work stands available in 6 different sizes and weights. Work stands come with choice of trays for delivery of parts to the front, or to the right or left side.

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Write for literature on Monroe's complete Material Handling Equipment line, including: Drop-Bottom Skid Boxes; 8-Way and 2-Way Steel Pallets; collapsible wire and standard skid boxes; standard platforms, skids, nestling rings and accessories.

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Monroe, Mich. — World's Largest Maker Of Ride Control Products

Flow

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VOL. 5, NO. 5 • FEBRUARY, 1950

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COVER PHOTO—A one-ton electric hoist operates on an oval monorail track above a degreasing tank at the United Mfg. Co., New Haven, Conn. The hoist and company-designed dipping racks have upped unit loads from 50 lb. to 2000 lb. The parts shown, a component for lighting fixtures, were formerly handled singly, now 20 or more at a time.

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All communications should be addressed to FLOW Magazine, 1240 Ontario Street, Cleveland 13, Ohio.

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MANFRED SCHUELER
EDITOR

HENRY F. EATON
Associate Editor

EDWIN M. JOSEPH, Director
Circulation Department

•

FLOW EDITORIAL AND BUSINESS OFFICES—

CLEVELAND OFFICE
HAROLD F. BEHM,
1240 Ontario Street
Cleveland 13, Ohio
Phone: Tower 1-0264

NEW YORK OFFICE—
LEE HAAS
60 E. 42nd St.
New York 17, New York
Murray Hill 7-3420

CHICAGO OFFICE
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Room 734
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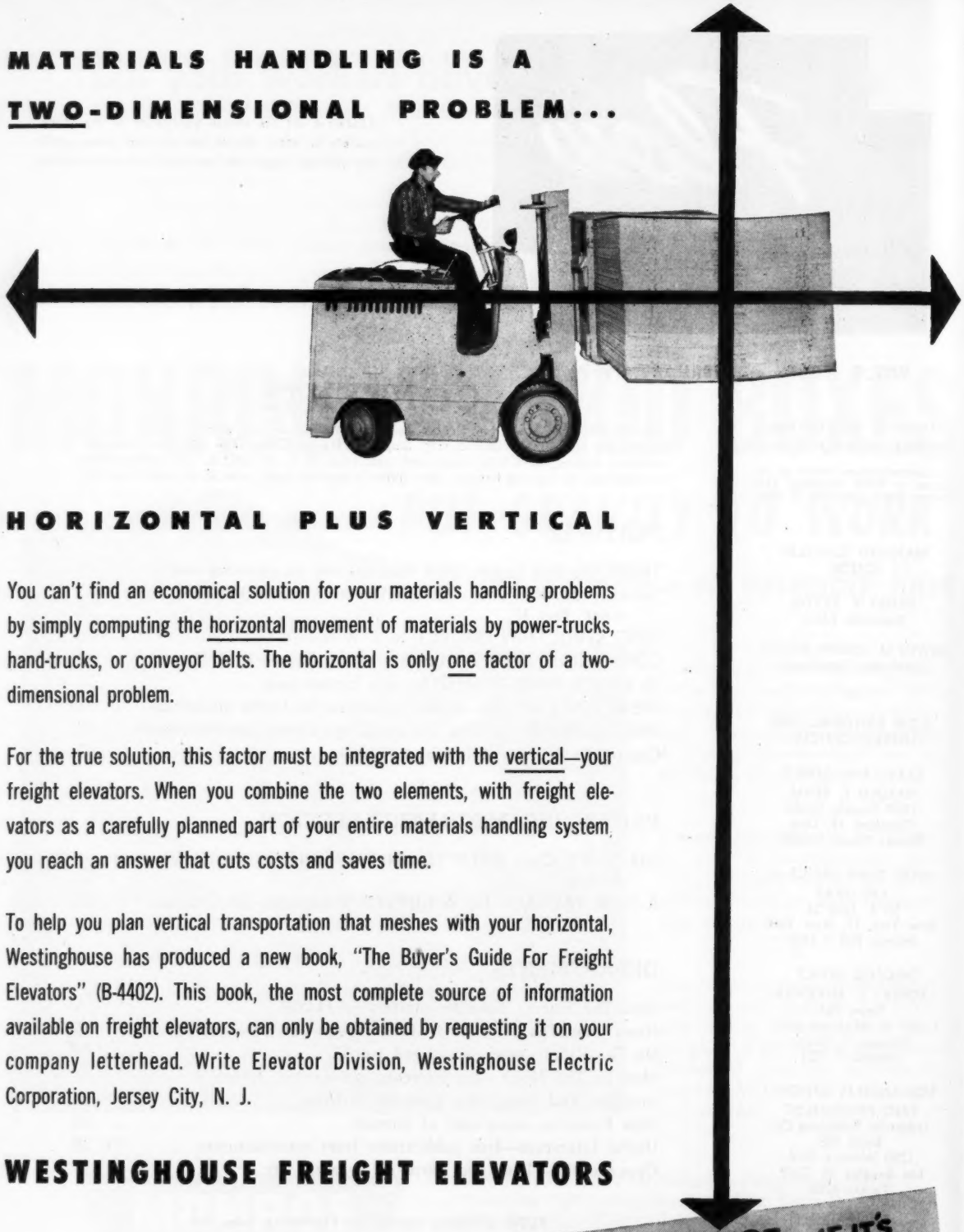
MATERIALS HANDLING IS A TWO-DIMENSIONAL PROBLEM...



HORIZONTAL PLUS VERTICAL

You can't find an economical solution for your materials handling problems by simply computing the horizontal movement of materials by power-trucks, hand-trucks, or conveyor belts. The horizontal is only one factor of a two-dimensional problem.

For the true solution, this factor must be integrated with the vertical—your freight elevators. When you combine the two elements, with freight elevators as a carefully planned part of your entire materials handling system, you reach an answer that cuts costs and saves time.

To help you plan vertical transportation that meshes with your horizontal, Westinghouse has produced a new book, "The Buyer's Guide For Freight Elevators" (B-4402). This book, the most complete source of information available on freight elevators, can only be obtained by requesting it on your company letterhead. Write Elevator Division, Westinghouse Electric Corporation, Jersey City, N. J.

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GOING UP! This Elwell-Parker lifts a 3500 pound paper roll 17½ feet for extra high tiering. The truck is equipped with the new E-P rotating clamp device that holds any roll, barrel, drum, cask, etc., in a pressure regulated grip. This clamp, by eliminating need for pallets, saved one user 20% in storage space alone. Close orderly stacking, either vertically or horizontally, and quick pickup from stocks are accomplished by this clamping device.

You need not spread your loads around over costly floor space leaving a "vacuum" overhead. With Elwell-Parker trucks, you can assemble your loads in master units and high tier them to utilize profitably all overhead space. The job is done rapidly, by minimum manpower, and with complete safety to product and operator.

Elwell-Parkers are equally profitable in all types of handling work, including *production* operations where they enable you to control precisely the flow of material to and from machinery. This is of vital importance because *the output of no machine is greater than its system of supply.*

Call in your nearest EP man for a Handling System specifically "tailored" to your needs. He is backed by Elwell-Parker's more than 40 years' experience, serving over 300 industries. The Elwell-Parker Electric Company, 4232 St. Clair Avenue, Cleveland 3, Ohio.

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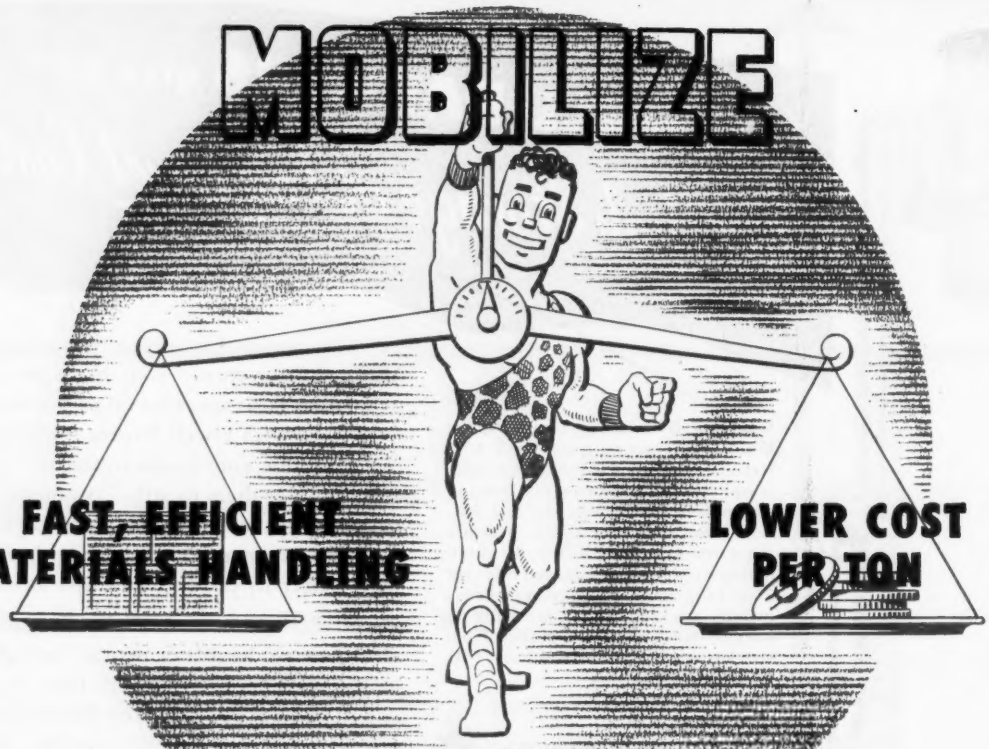
ELWELL-PARKER

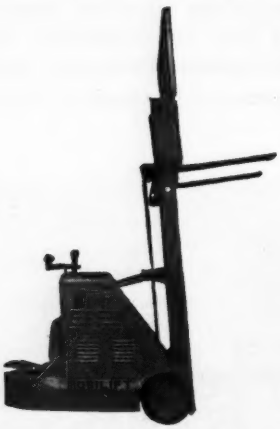
POWER INDUSTRIAL TRUCKS

Established 1893

MOBILIZE



FOR GREATER ECONOMY



● Most industries find that economy in handling materials comes from a balanced program. The system used must move and stack materials in a fast, systematic manner at a low cost per ton.

The answer is in Mobilift's high degree of maneuverability. Compact in size, short in turning radius and with no gears to shift, it works smoothly and quickly in crowded areas and narrow aisles—lifting, moving and stacking with a minimum of lost motion. Get this balance of high efficiency and low cost in your own handling program by "Mobilization". One of our handling experts will be glad to explain Mobilift's cost-cutting advantages.

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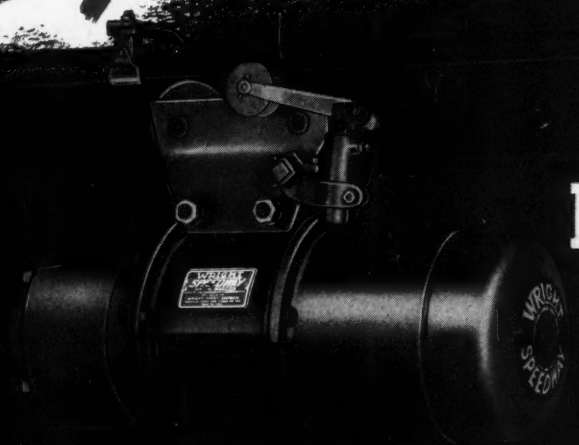

UP TO 10-TON CAPACITY...
in a wide range of speeds, lifts, mountings

Send for this folder

Your nearby Wright Distributor or Wright District Office can supply you with complete information about the line of Speedway Electric Hoists. Ask for your copy of folder **DH-65.** *If you prefer, write to the factory at York, Penn.*

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● The more carefully you study specifications—the more exacting you are in making trial tests—the more *particular* you are in your selection of hoisting equipment—the more likely you are to choose WRIGHT.

That goes for Electric Hoists, Hand Hoists, Trolleys, or Cranes.

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ACCO

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AMERICAN CHAIN & CABLE

TRADE MARK

In Business for Your Safety

HOISTS
TROLLEYS
CRANES

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ARE PROVING THEIR WORTH

Where Costs Count!

Consider the many outstanding advantages in the operation of Coles Cranes for attaining maximum production with minimum overhead and labor costs.

Low Initial Investment: From a standpoint of economy your original cost counts when purchasing a mobile crane. In making a comparison—low operating cost, low maintenance and no costly repairs—is, no wonder why Coles Cranes reduce Material Handling Costs and "prove their worth" . . . where costs count most.

Versatility: Coles Cranes great maneuverability inside or outside your plant, in narrow aisles or close quarters with the cantilever type boom enables Coles Cranes to get closer to work.

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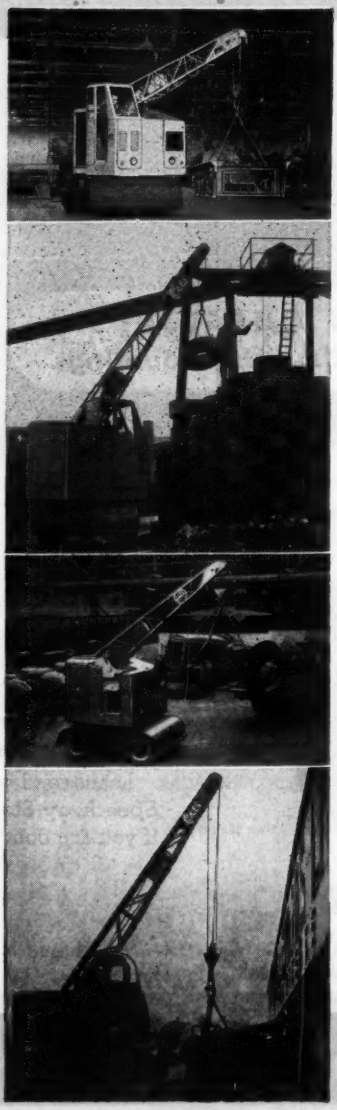
Write us for the name of your nearest dealer and descriptive literature



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Parent company STEELS ENGINEERING PRODUCTS, LTD., Est. 1867

To FLOW:

In Demand

Mr. R. C. Sollenberger, Executive Secretary of the Conveyor Equipment Manufacturers Association, showed me a list setting forth various articles on conveyors which have appeared in your publication during 1949. I represent the Jervis B. Webb Co. of Detroit, in Washington. . . .

However, I am also interested in produce pre-packaging. In your May and June issues you had articles on pre-packaging which I think might be of interest to me. I am wondering if you could spare copies of those issues. — Earl French, Consultant, Washington 9, D. C.

To FLOW:

Portable Stackers

I have searched your FLOW DIRECTORY, which is extremely well gotten up, but failed to find a listing to satisfy a request for information as to manufacturers of power stacking equipment — belt stacking type of machine.—Harold O. Smith, Jr., Executive Vice-President, United States Wholesale Grocers' Association, Inc., Washington, D. C.

On page 119 of the DIRECTORY, under the general classification of "Lifts, Portable", sub-classification "Stackers", are the names of approximately two dozen manufacturers of this type of equipment. —Ed.

To FLOW:

Air Freight

It would be appreciated if you would send us a reprint or tear sheets of the article "Material Handling in the Air Age," which was published in the October and November 1949 issues of FLOW Magazine.—B. C. Wilmot, Libra-

rian, Trans-Canada Air Lines, Montreal, Quebec, Canada.

This two-part article also discussed handling techniques, still in the planning stage, which are influencing near-future transport aircraft design. This trend points to the increasing appreciation of engineered handling practices, on which the future growth of air freight is largely dependent.—Ed.

To FLOW:

Since First Issue

I have been a close follower of FLOW since Vol. 1, No. 1; in fact, I have a complete file, indexed for ready reference.

I resigned as Vice-President in charge of Warehousing, Merchants Refrigerating Company, as of December 1st to resume my practice as a consulting engineer. Will you be good enough to advise your subscription department of my address so I may continue to receive FLOW regularly. — D. O. Haynes, 30 Church St., New York 7, N. Y.

To FLOW:

Novel Monorail Application

We would appreciate it if you would send us six copies of the article appearing on Page 42, of FLOW, November 1949, entitled "A Department Store Brings Flow To Its Ready-To-Wear Operation".

This can be either the magazine or the tear sheets.—V. E. Slater, The Slater Engineering Co., Richmond Heights, Mo.

To FLOW:

Backnumber Request No. 1

Many thanks for your kind letter and the June 1949 copy of your FLOW Magazine. One of our good friends in the produce prepackaging industry had pointed out your publication to us during a recent trip and we have read with much interest your article on "Prepackaging Tomatoes In Trays" in the June issue.

It is our understanding that a similar article appeared in the May, 1949 issue on spinach packaging

(Turn to page 17)

TURNING RADIUS OF OTHER MAKES

SMALLER TURNING RADIUS OF THE MOTO-TRUC

Gain Space AND REDUCE HANDLING COST

SHORTER OVERALL LENGTH, LOW POWER COST--

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THEY OPERATE IN NARROWER AISLES, permitting expansion of storage area, an invaluable feature, especially where space is at a premium.

SIMPLE CONTROL reduces operator fatigue, increases efficiency. A turn of the wrist on easy grip roller type handle gives two speeds forward and two speeds reverse. Push buttons in the ends of handle control the hydraulic lift.

MOTO-TRUCS ARE SAFE. Dead man controls and other safety features provide dependable protection for both the operator and loads.

POWER COST IS LOW. You can keep Moto-Trucs busy for as little as 8c per 8-hour day.

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just say "*Truscon*"...

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Type B-80C Truscon Box Equipped for Crane Handling
Truscon Double Face Steel Pallet.

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and there's the *box* you need!

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Smooth!
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Sturdy!
Completely-welded steel-plate frames, rolled-steel uprights, automotive-type drive and steering axles for durability.

Dependable!
Built-in strength plus GE's renowned dust- and moisture-tight motors keep CLARK Electrics in service.

Economical!
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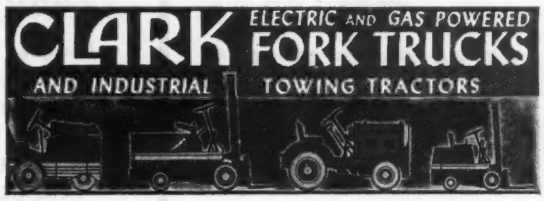
Profitwise, it makes no difference to CLARK whether you choose electric-powered or gas-powered fork-lift trucks; CLARK builds a complete line of *both*. But profitwise, it makes an important difference to *you*.

The benefits to be gained from mechanizing your materials handling are sure to be considerable under any circumstance, but they can be maximum *only* when you use equipment that is *exactly right* for your particular operation. By determining *before you buy* which power type is better for your plant, you'll be money ahead . . . and more money ahead, of course, for buying that proper power type in the CLARK line.

You can CONSULT CLARK with assurance of getting completely impartial advice about your specific needs; advice backed by unrivalled experience in modern materials handling methods, and by machines that are acknowledged leaders in their field.

It will pay you to call the CLARK dealer. There's one near you, and he's equipped to give you thoroughly dependable help. It costs nothing to CONSULT CLARK and it doesn't obligate you in any way.

For a copy of Material Handling News and information about CLARK movies (invaluable guides to the best in materials handling methods and machines) write direct to CLARK.



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HYSTER

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Operates equally as well inside or outside your plant. Low center of gravity, better visibility; EASIER ON FLOOR SURFACES, THE OPERATOR, AND ON LOADS.

THOUSANDS of HYSTER 20 trucks are in use in HUNDREDS of INDUSTRIES. NOW the New Hyster 20 Lift Truck can cut materials handling costs even more. SEE IT at your nearest HYSTER DISTRIBUTOR. While you are there, inspect his SERVICE facilities.

Handle it "THRU-THE-AIR" Dependably!

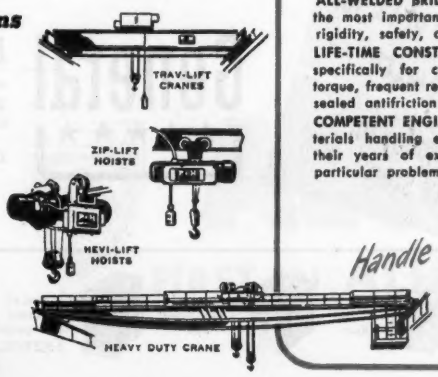
There's only *one* Trav-Lift! P&H builds it! But it's available in capacities up to 15 tons — with various lifting speeds and spans — with floor or cage control. In short, your Trav-Lift is tailored to fit your specific needs.

Designed and built with the same safety factors as a heavy-duty crane, standardized designs and lower costs make the Trav-Lift your best bet wherever service needs do not warrant investment in a heavy-duty crane.

Dependable? It's a product of P&H — America's leading builder of overhead materials handling equipment!

Trav-Lift Capacities Run up to 15 Tons

See how the P&H Trav-Lift Crane can bring you new and broader economies in materials handling. Write for Bulletin H-13.



These added values protect your investment

VARIABLE SPEED FULL MAGNETIC CONTROL provides 5 distinct steps for all motions: controlled from pendant push-button or from operator's cab.

SAFE — Only 110 volts at the push-button when floor-controlled. Start-stop main line contactor, disconnect switch, thermal overload protection, magnetic limit switch and powerful brakes assure maximum safety.

ALL-WELDED BRIDGE AND TROLLEY incorporates the most important factors in reliable service — rigidity, safety, accessibility.

LIFE-TIME CONSTRUCTION — Motors designed specifically for crane service — high starting torque, frequent reversal, etc. Shaved gears, grease sealed antifriction bearings throughout.

COMPETENT ENGINEERING SERVICE — P&H materials handling engineers will gladly give you their years of experience in working out your particular problems. Write us.

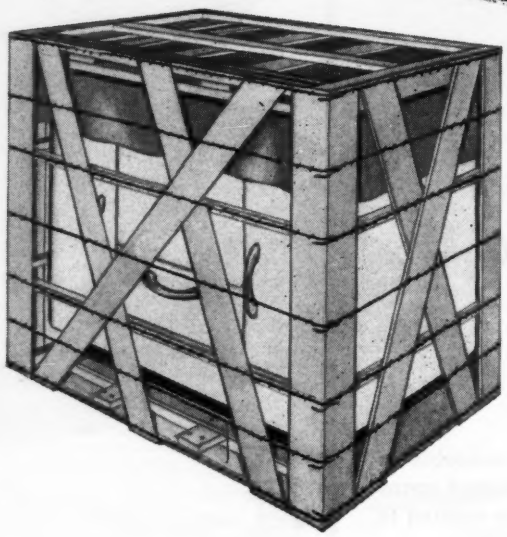
Handle it "thru-the-air" at lower cost

P&H

TRAV-LIFT CRANES
4643 West National Avenue
Milwaukee 14, Wisconsin

HARNISCHFEGER CORPORATION
HOISTS · WELDING ELECTRODES · MOTORS · P&H · EXCAVATORS · ELECTRIC CRANES · ARC WELDERS

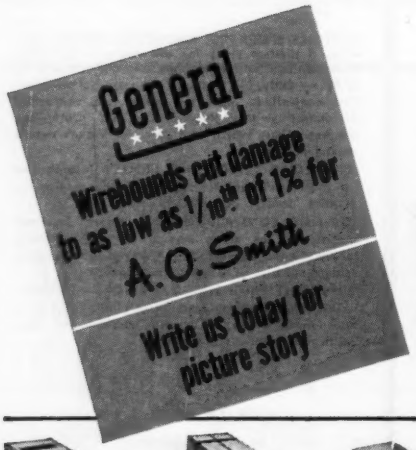
General Boxes... Assure the best of PROTECTION



for STOVES or STAMPINGS

or hundreds of other products

Let's quickly get down to cases, sir. Is your container lightweight yet extra strong? Is it quickly and easily assembled? Is it designed to your specific need? Does it give your product "the best of protection"? If the answer is "yes," then chances are you are using General Wirebounds. If not, better write us today.



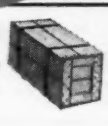
General BOX COMPANY

engineered shipping containers

GENERAL OFFICES:
60 W. Illinois Street, Chicago 10, Ill.

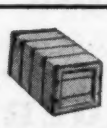
DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, Meridian, Sheboygan, Winchendon.
Continental Box Company, Inc.: Houston, Dallas

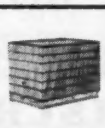
General Wirebound Crate


General Nailed Box

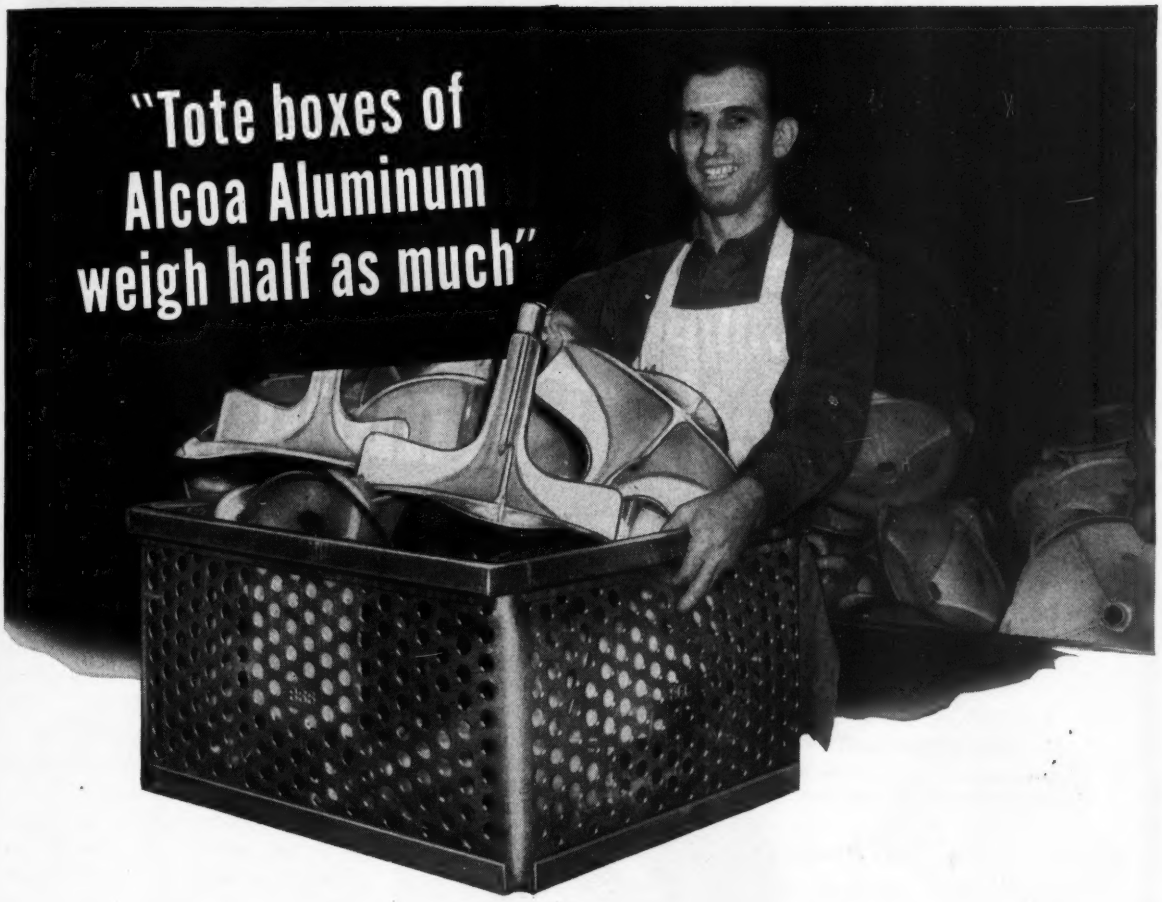
General Corrugated Box

General Cleated Corrugated Container


General All-Bound Box


Generalift Pallet and Pallet Box

General Watkins-Type Box



Now they are making tote boxes of Alcoa Aluminum that are as strong as steel ones... yet weigh half as much. These light weights are easy to carry... easy to stack. They speed your entire handling operation. Steam clean them or put them in vapor or solvent degreasers. You can't hurt 'em. Manufacturers in the electronic and radio fields like their non-magnetic feature. And their low cost will surprise you.

Like to have more information on these better, lighter tote boxes? Mail the attached coupon to: ALUMINUM COMPANY OF AMERICA, 1985B Gulf Building, Pittsburgh 19, Pennsylvania.

- LIGHT WEIGHT
- NON-MAGNETIC
- CAN BE STEAM CLEANED OR DEGREASED

Gentlemen:
Please send a list of manufacturers who are making tote boxes of Alcoa Aluminum.

Name_____

Title_____

Company_____

Address_____

ALCOA ALUMINUM

ALCOA

FIRST IN ALUMINUM

...for completely dependable service!

Thermoid conveyor belts, hose, other rubber products and brake linings are built to meet your requirements.

Thermoid distributors and field representatives are familiar with industry's day-by-day problems and have a wealth of experience in solving problems similar to yours. You receive the best available advice and practical down-to-earth recommendations whenever you take your rubber problems to Thermoid.

Thermoid's planned program of product research and development assures you of maximum service and lowest operating costs whenever you specify Thermoid Industrial Rubber Products.

It will pay you to *Specify* Thermoid!

Thermoid Quality Products: Transmission Belting · F.H.P. and Multiple V-Belts · Conveyor Belting · Elevator Belting · Wrapped and Molded Hose · Molded Products · Industrial Brake Linings and Friction Materials.

Write for latest Thermoid Catalog Digest and the name of your nearest Thermoid Distributor

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Main Offices and Factory • Trenton, N. J., U. S. A.
Western Offices and Factory • Nephi, Utah, U.S.A.
Industrial Rubber Products • Friction Materials • Oil Field Products

OVER EDITOR'S SHOULDER . . .

(Continued from page 9)

operations at the plant of Cavalier Brands, Inc., and we would greatly appreciate receiving a reprint or tear sheet of this article should it still be available.—F. W. Spannagel, Sylvania Division, American Viscose Corp., New York 1, New York.

To FLOW:

Backnumber Request No. 2

Will you kindly rush one copy of "Flow" Magazine, August 1947 issue, either billing us or send C.O.D.

This issue contains the article in which we are interested: the Behr Bros. scrap metal company in Rockford, Illinois.—Sidney Blackstone, Adams-Steele, Inc., Chicago, Ill.

As the numbered requests indicate, readers write in regularly for FLOW backnumbers. However, the longevity of the article requested by Reader Blackstone caused a slight ripple of surprise, though periodically articles are requested which appeared before 1947.—Ed.

To FLOW:

Backnumber Request No. 3

We desire to receive tear sheets of the article "Heavy Forge Job—Effortlessly Done" by T. E. Parish which appeared in "Flow", Volume 4, No. 9, June 1949, page 25-26.—Brooks E. Ewing, the National Machinery Co., Tiffin, Ohio.

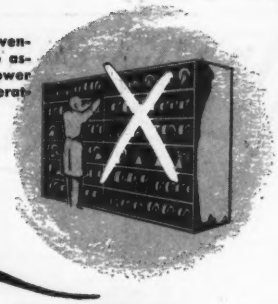
Glad to comply—Ed.

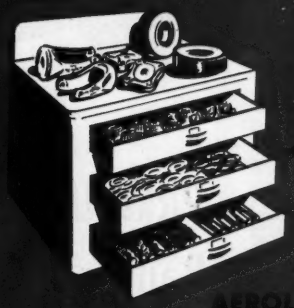
1949-1950 DIRECTORY

The first issue of the FLOW directory of Material Handling Equipment and Accessories was received with great acclaim. Copies of the second improved directory, even more widely acclaimed, are available at $5 per copy. Several sections have been expanded and new ones added. Send for yours now.

Every Part Replaceable IN AEROL

INDUSTRIAL WEEELS • CASTERS • HAND TRUCKS





The AEROL Way

A small stock of interchangeable parts meets any replacement need

AEROL Products . . .

Save Effort — Tread quality and contour, tapered roller bearings, and lifetime lubrication combine to give 20% greater reliability.

Save Time — Fewer equipment tie-ups for lubrication and maintenance.

Save Weight — Aluminum alloy castings reduce dead weight resulting in greater loads at less cost per mile of operation.

Save Money — Long, trouble-free life guaranteed by superior design, materials and workmanship.

Save Floors — Greater reliability and easier swivelling means less floor repair and maintenance.

Save Personnel and Equipment — Lessen weaver fatigue on manual equipment; battery strain and clutch wear on towing units.

NO WHEEL ROLLS LIKE AN AEROL

Guaranteed 20% Greater Reliability

A SUBSIDIARY OF LOCKHEED AIRCRAFT CORPORATION

AEROL CO. INC.

2820 ONTARIO ST.
BURBANK
CALIF.

Write to the nearest factory branch listed below for the name of the distributor in your area:

2820 Ontario Street, Burbank, California

241 East 26th Street, Cleveland, Ohio

884 [illegible] Halsted Street, Chicago, Illinois

40-68 Lawrence Street, Flushing, L. I., New York

FREE Materials Handling Manual

Aerol Co., Inc., 2820 Ontario St., Burbank 1, Calif.

Please send me, without cost or obligation, the Aerol Modern Materials Handling Manual:

Name _____ Title _____

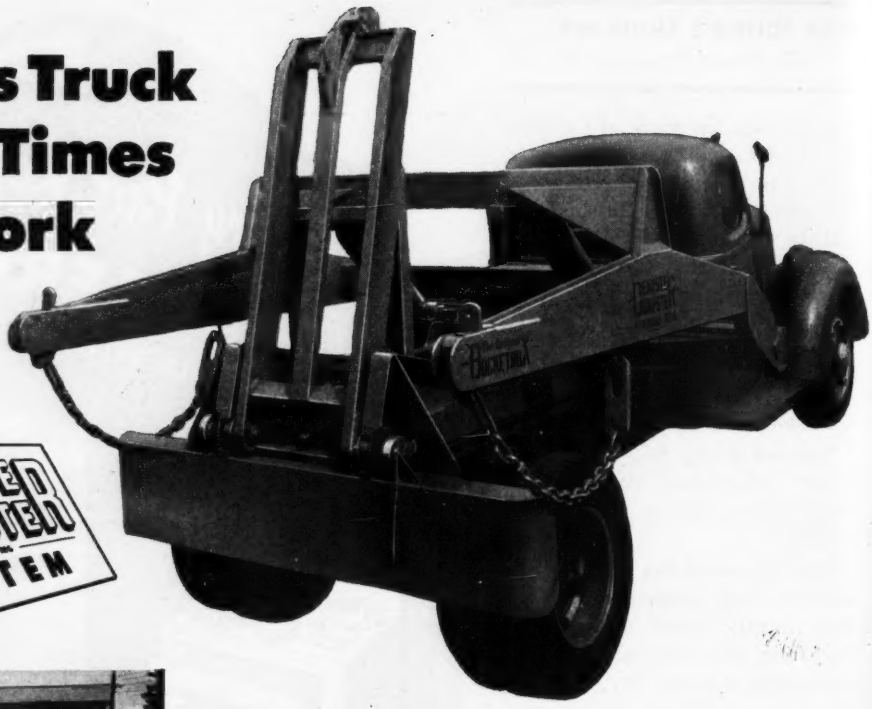
Firm _____

Address _____

City _____ Zone _____ State _____

Now This Truck Does 10 Times More Work

In The DEMPSTER DUMPSTER SYSTEM



Picks-Up, Hauls, Dumps Four Railroad Cars of Materials Daily!

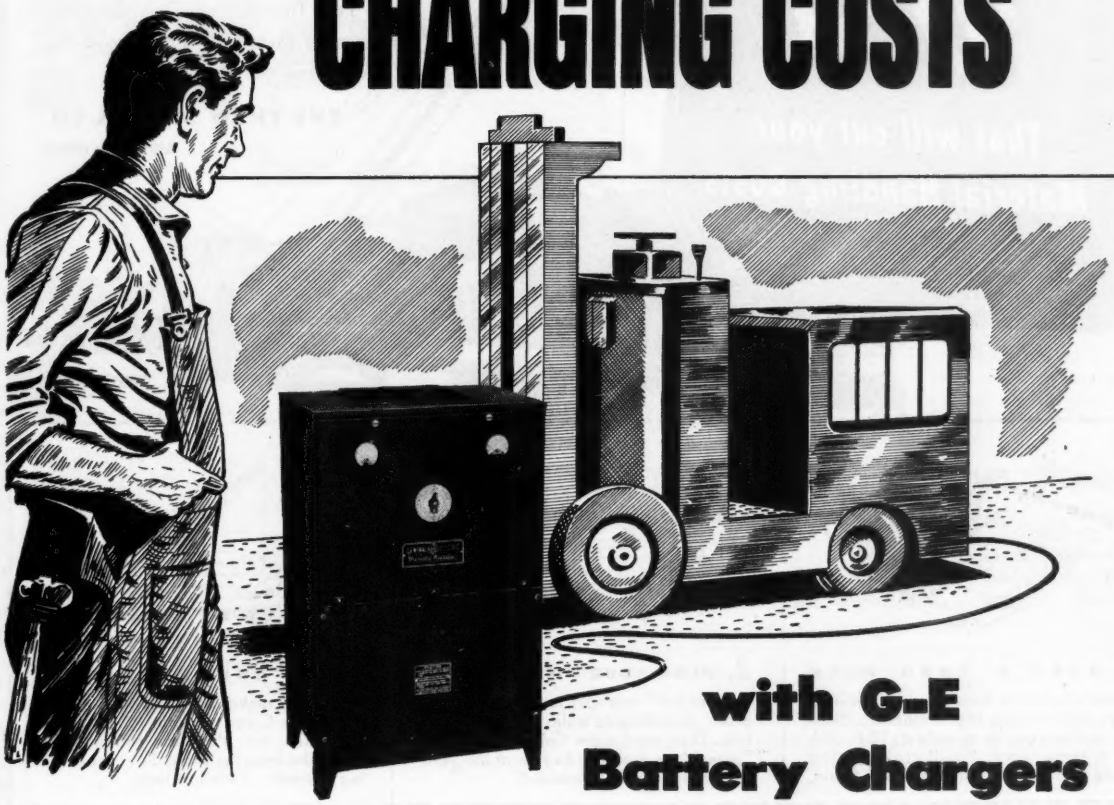
Before the Dempster-Dumpster Hoisting Unit was installed on the above truck chassis, it was one of 10 conventional trucks being loaded by hand. Now, the truck hoisting unit has replaced all 10 trucks. In many plants handling materials by the Dempster-Dumpster System, one Truck Hoisting Unit has replaced from 5 to 10 conventional trucks. In each plant a single hoisting unit handles many containers. In one particular installation, one unit serves 37 detachable containers of various types and sizes, ranging from 2½ to 8 cu. yds. This plant produces, daily, approximately 220 cu. yds. (about 4 car loads) of materials of every description, including rubbish, scrap and finished product. This daily output is handled in only eight hours by the Dempster-Dumpster equipment. Containers are spotted at materials' accumulation points throughout the plant. When each container is filled, it is picked up by the truck hoisting unit, carried to the point of disposal, set down intact or dumped and returned for refilling. The entire operation is hydraulically controlled and handled by only one man, the driver. This modern system is eliminating much equipment investment in industrial plants. It is cutting maintenance costs, tire and gas requirements. But, most important, it increases production with a minimum of manpower. Don't assume that your problem is different—that the Dempster-Dumpster System of materials handling is not applicable to your problem. Such cases have happened, only to discover later that this equipment was exactly the type needed. Our most difficult job in our advertising is to make the wide use . . . the flexibility and simplicity of the Dempster-Dumpster operation clear to the reader. It will pay you to investigate the Dempster-Dumpster System now! A product of Dempster Brothers, Inc.

Pictured at left is a standard drop bottom type container in three stages of operation—on the ground, in carrying position, and dumping.

DEMPSTER BROTHERS

820 N. KNOX, KNOXVILLE 17, TENN.

GET LOW ELECTRIC-TRUCK CHARGING COSTS



with G-E Battery Chargers

- **Low Current Costs**

The heart of the G-E Battery Charger is its copper-oxide rectifier stack—proved highly efficient throughout a virtually unlimited life.

- **Low Maintenance Costs**

Nothing moves except a fan, requiring only occasional lubrication—plus full protection against both mechanical and electrical failures.

- **Low Labor Loss**

Spotting these economical chargers throughout a plant means no long wasteful excursions to charging areas. No waiting for an expert to hook up charging apparatus. Special training or skill is not needed to use a G-E Battery Charger. It's simple—automatic.

- **Low Battery Costs**

Two-rate charging safely brings batteries up to full charge. Starting with a fast charge when the battery is in a discharged condition the battery charger rapidly builds up a substantial charge then automatically tapers off to a slow, safe finishing rate. This safe, gentle handling during charging helps batteries maintain their full rated service life.

For complete details see your local electric truck dealer or write Apparatus Department, General Electric Co., Schenectady 5, N. Y.

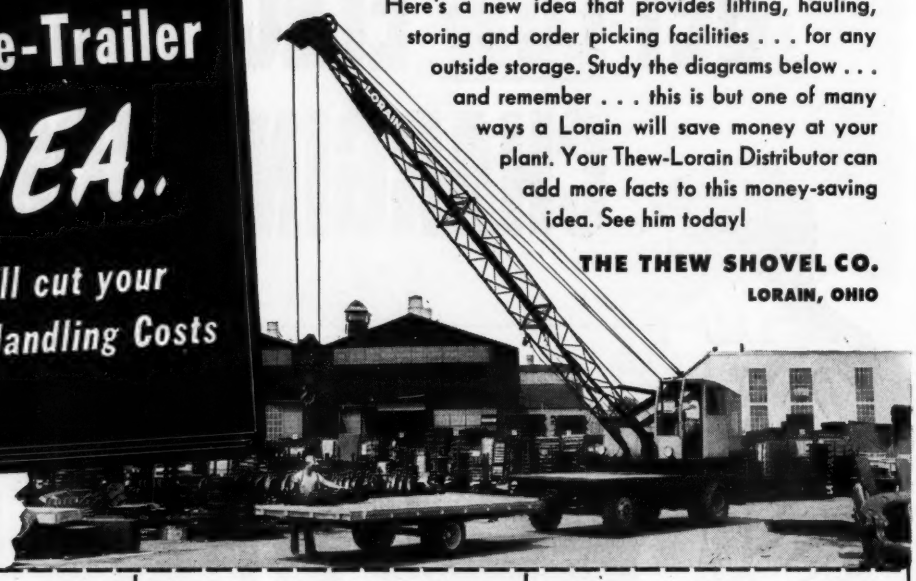
GENERAL ELECTRIC

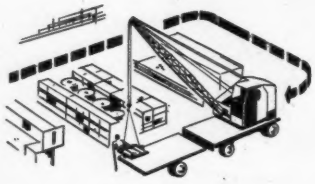
A Crane-Trailer IDEA..

That will cut your Material Handling Costs

Team up a Lorain Crane with one or more yard trailers and watch material handling costs take a tumble! Here's a new idea that provides lifting, hauling, storing and order picking facilities . . . for any outside storage. Study the diagrams below . . . and remember . . . this is but one of many ways a Lorain will save money at your plant. Your Thew-Lorain Distributor can add more facts to this money-saving idea. See him today!

THE THEW SHOVEL CO.
LORAIN, OHIO



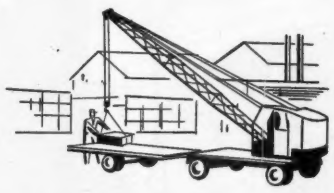


1. MAKE A YARD PLAN

Make a plan for storage . . . numbered bays, wider aisles, higher stacking. Storage sections can be as wide as 70 ft. with 35 ft. crane reach. You'll cut down lost space with the far-reaching Crane boom.

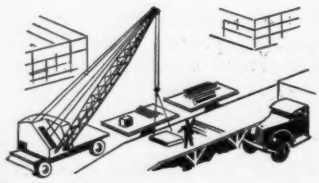
2. PLAN YOUR PICK-UP CYCLE

The "picker" arranges requisition lists in order, according to aisles and bay numbers. Then the Lorain Crane follows the "picker" on a planned cycle of the yard . . . back-tracking is avoided.



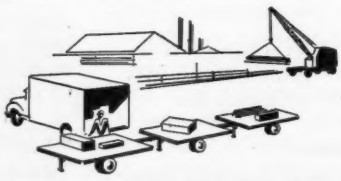
3. IT'S ONLY A 2-MAN JOB

Your order picker does double-duty. He signals the Crane operator . . . and is the hook-man, too. Parts are unhooked on the trailer from the ground . . . no climbing hazards . . . no lost time.



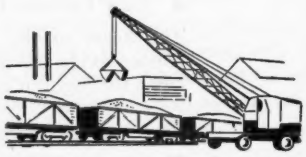
4. CRANE UNLOADS TRAILER, TOO

PUSH or PULL the trailer to the shipping dock via Lorain 8 m.p.h. mobility. Then the Crane that transports also unloads the trailer at the dock for sorting, crating, shipping.



5. MULTIPLE TRAILER OPERATION

When the Crane is busy . . . or off duty . . . load up several "stand-by" yard trailers. When Crane is available, couple to the trailers and dispatch loads. Saves unloading to temporary ground storage and later reloading to trailers.



6. BONUS SAVINGS EVERY DAY

When free from trailer duty your Lorain Crane is available to load or unload sand, coal, steel, lumber . . . handle plant construction and maintenance.

MORE FOR YOUR $ IN A LORAIN

THEW Lorain®

CRANES FOR INDUSTRY

Send for Free Folder . . .

THE THEW SHOVEL CO.
LORAIN, OHIO

Send illustrated folder, showing how Lorain Cranes are cutting material handling costs for others.

Name_____

Title_____

Address_____

City_____ State_____

B.F. Goodrich

announces

TIRE AND WHEEL ANALYSIS PLAN

for materials handling

HOW IT WORKS

An experienced tire and wheel man will survey your operation. He will study loads, hauls, handling equipment, floors and hauling surfaces, and discuss any special tire and wheel problems you may have. On completion of this survey the BFG man, without charge or obligation on your part, will submit recommendations as to the best type and size tires and wheels for your particular service with information on the longest-wearing compounds and on retreading. He will also provide suggestions on tire care and maintenance.

HOW YOU SAVE

Tire and wheel costs can be cut as much as 50% through the application of the right type, size and tread compound, to the job. Additional savings are made through protection of floors, equipment and cargo. (Previous studies show improvements can be made in two out of three operations.)

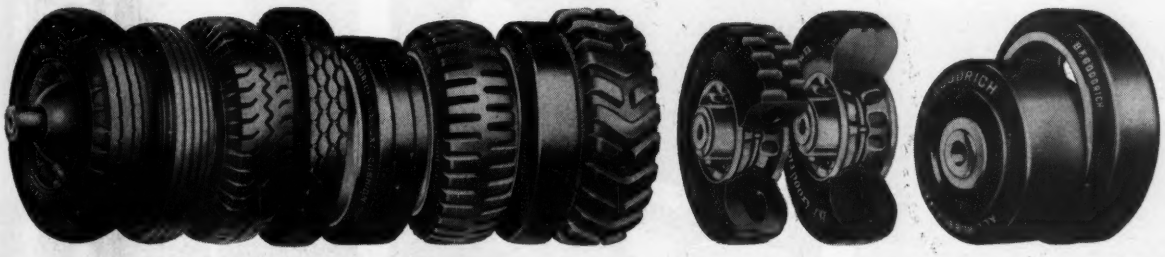
Proper tire maintenance alone can cut tire and wheel costs 10% to 20%.

WHY YOU GET IMPARTIAL RECOMMENDATIONS

No other company offers as wide a range of types, sizes, and tread compounds as B. F. Goodrich. There is no selfish reason for a B. F. Goodrich man to push any one type of tire against another. He has them *all.* His advice is impartial.

14 TYPES OF TIRES—6 DIFFERENT TREAD COMPOUNDS

B. F. Goodrich offers a complete line of tires for materials handling equipment—pneumatics, puncture-sealing inner tubes, solids including pressed-on and vulcanized-on types, zero pressure types (semi-pneumatics). There's a wide choice of tread designs in each type and 6 different tread compounds for 6 different purposes in the solid tires. Only B. F. Goodrich has this complete line of types, compounds and sizes. *Today—mail the coupon for information on this new* and practical Tire and Wheel Analysis plan. A similar program is available for manufacturers of materials handling equipment.



The B. F. Goodrich Co.
Department TW-21
Akron, Ohio

Please give me additional information on your Tire and Wheel Analysis plan.

Name_____

Title_____

Company_____

City_____ State_____

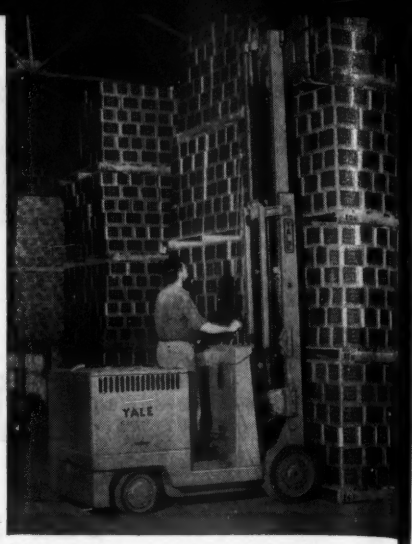
MOVE MORE...SAVE MORE

Production is material in motion. That's why Yale Material Handling Machinery is so important to *your* business. Whether you use Yale Trucks, Hoists or Scales, the big advantages you get are faster handling of more material per day, greater production with less effort, better conditions of safety and the good will of employees relieved of heavy lifting and moving jobs. Result: far lower costs!

Regardless of what you receive, process, or ship, there's a Yale tool to keep it "on the move." Our nearby representative will gladly help you select the right lift truck, hoist or scale to give you the production efficiency and economy you want. See your telephone book or write direct to headquarters.

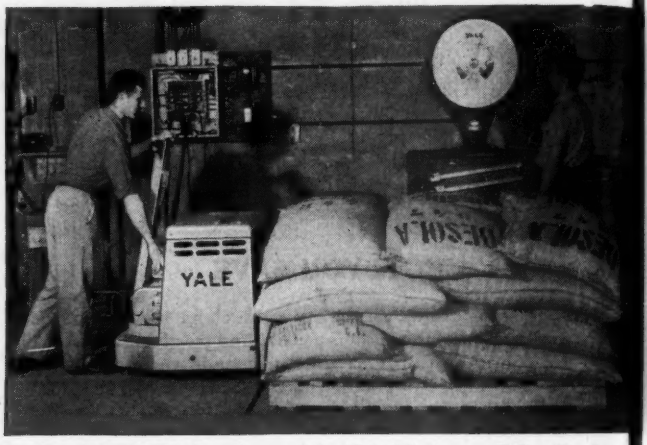
YALE
TOOLS THAT KEEP INDUSTRY "ON THE MOVE"

THE YALE & TOWNE MANUFACTURING CO.
DEPARTMENT L-94
ROOSEVELT BOULEVARD
PHILADELPHIA 15, PA.

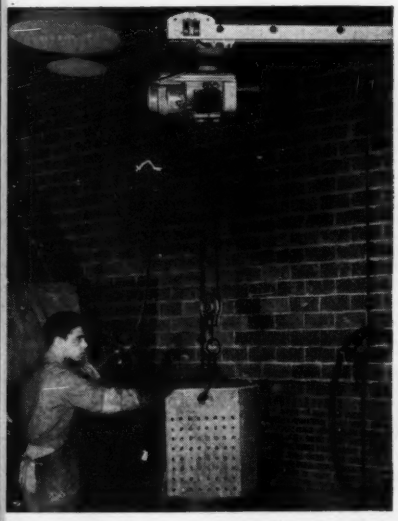


High stacking provides wider aisles, makes storage facilities hold more, saves the expense of new buildings. Yale High Lift Fork, Ram and Platform Trucks assure such efficiency.

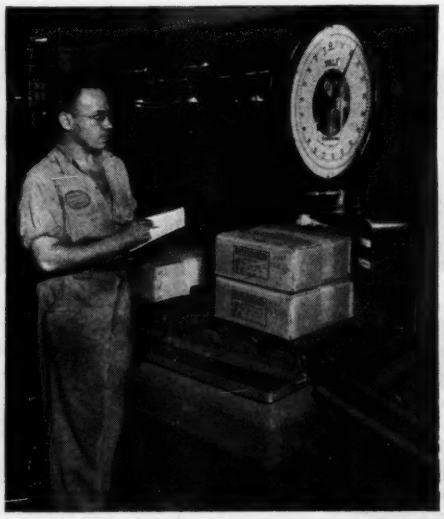
Fewer trips per day, less lugging and tugging—big capacity Yale Hand Lift Trucks nail down costs by freeing men's time for productive work.



Multi-unit loads lifted and moved by Yale Worksaver Pallet Truck save time and effort, eliminate much costly, hazardous rehandling.



"Safety First" for worker and load—that's what easy-to-use Yale Hand and Electric Hoists provide, aside from their fast, money-saving efficiency.



Accurate weighing means accurate shipping costs. Yale Load King Scales are made in types and capacities that "fit in" with material handling operations.

The difference between profit and loss often depends on accurate weight and count. Only Yale Load King Scales give you MAGNET-ROL weighing and counting accuracy.

YALE

MATERIAL HANDLING MACHINERY · *hoists . . . hand and electric · trucks . . . hand lift and power · industrial dial scale*

Handling toilet bowls on Bassick "Floating-Hub" Casters at American Radiator and Standard Sanitary Corporation's Torrance Works in California.

LET'S GO TO WORK ON THE

Reducible 30%

Cost analysts say materials-handling generally runs about 30% of total manufacturing costs. Further, they point out, most other costs—wages, taxes, plant overhead—are not readily susceptible to reduction. Which means—look to materials-handling for cost savings . . . find your extra margin of profit in materials-handling's "Reducible 30%."

THIS "FLOATER" ATTACKS THE Reducible 30% *3 WAYS!*

Famous Bassick "Floating-Hub" Caster—(1) speeds movement of parts and products; (2) protects loads, particularly liquids, fragile materials, delicate or highly-finished parts, from damage; (3) reduces wear and tear on floors, trucks and dollies.

Investigate "Floating-Hub" Casters . . . and other Bassick products—grooved-wheel casters running on angle iron track, position locks, etc.—that reduce your costs by saving assembly time and reducing maintenance on floors and "rolling stock."

For bulletins on Bassick casters and wheels, write to THE BASSICK COMPANY, Bridgeport 2, Conn. DIVISION OF STEWART-WARNER CORPORATION. *In Canada:* BASSICK DIVISION, Stewart-Warner-Alemite Corporation, Ltd., Belleville, Ontario.

"Floating-Hub" Caster carries the load off hub-center, cushioned by shock-absorbing spring. The load "floats" over bumps—no bounce, no shimmy, no tipping.

Bassick

Making more kinds of Casters . . . Making Casters do more

20%

ADDITIONAL K.W.H. CAPACITY

C & D FIVE-FOLD *Slyver-Clad*
Industrial Truck Battery

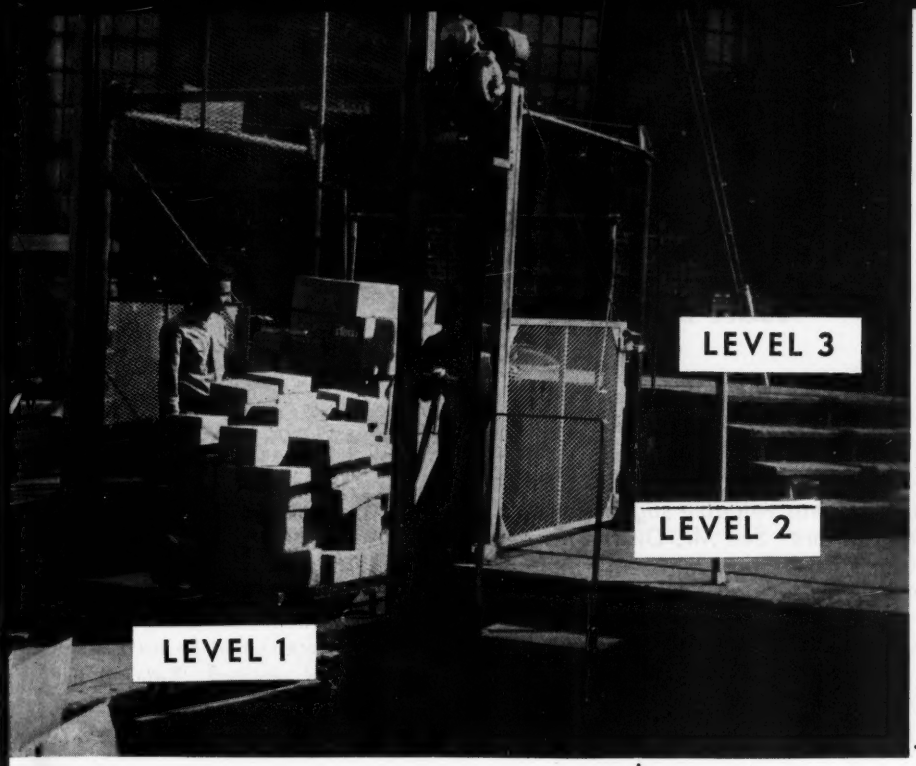
**Catalog IT-515
Available
On Request**

-at NO extra cost!

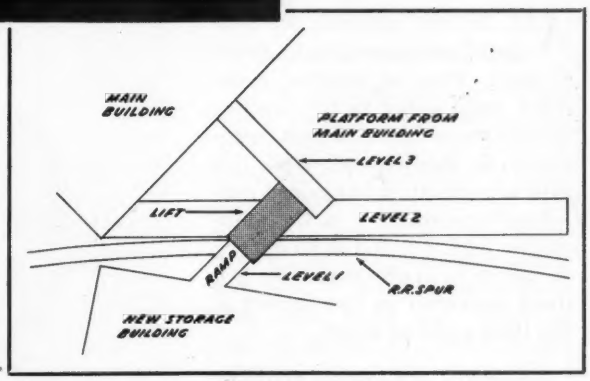
C & D BATTERIES, INC.

TELEPHONE · DIESEL · ELECTRIC INDUSTRIAL TRUCK · LOCOMOTIVE · STARTING & LIGHTING

Established 1906 **of Conshohocken, Pa.** SALES AND SERVICE IN PRINCIPAL CITIES



ELECTRIC LIFT serves three levels. No. 1, ramp to adjacent storage building. No. 2, rail dock. No. 3, platform to main building. Below: diagram shows relation of elevating unit to two buildings, rail spur and dock.



How a New England manufacturer found the "common denominator" for three different working levels by means of an electric elevating unit. Four benefits: 1. Muscle work is no longer a problem. 2. The accident rate has been virtually eliminated. 3. Damage of merchandise during inter-building transportation is nominal. 4. Employee morale has improved.

Elevating Unit Reduces { Three Working Levels To One Roadway

ABOUT four years ago, production increases outgrew finished goods storage capacity at the A. C. Gilbert Co., New Haven, Conn., well-known manufacturers of mechanical toys and electrical home appliances. It was therefore decided to use an adjacent structure, at that time designated for carton and paper storage, for the storage of packaged electric trains and accessories. A 25-ft.-long ramp with a 30-degree angle connected the two buildings.

First Things First

As is often the case, the pressing need for additional storage obscured certain transportation problems that were only discovered in the light of subsequent operations. The movement of packing materials up and down the steep grade between the two buildings was not a major consideration because the moves were infrequent and the weight of the loads not too heavy.

But, when operators were required to move the heavier loads of finished goods, these problems resulted: 1. Extreme physical effort in pushing the loads up the grade.

(Turn to page 55)

Servicing Brakes and Clutches on Ma

PART II of Three Parts

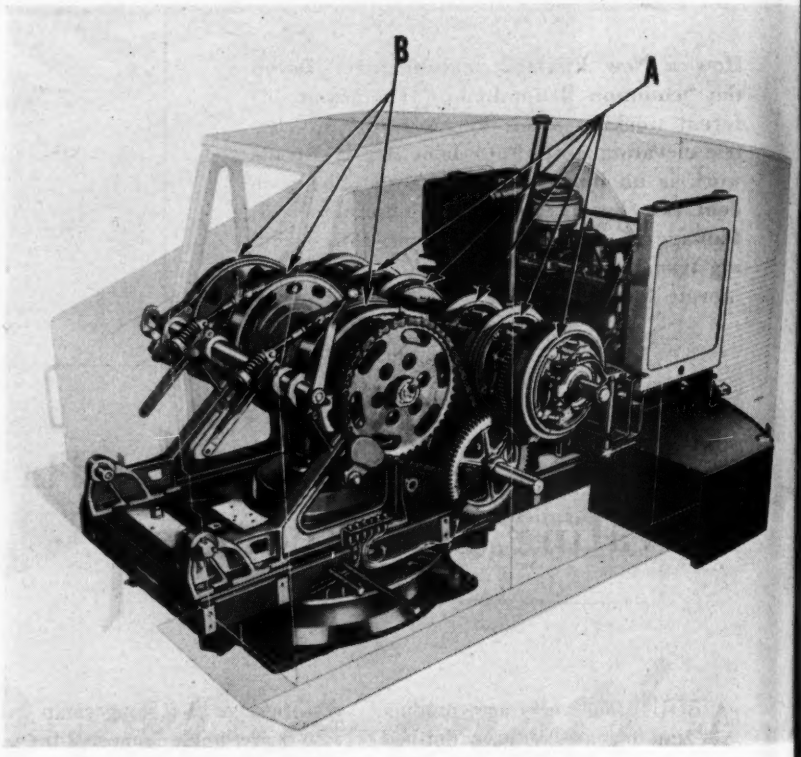
In this second part, the author gives valuable suggestions on performance and maintenance factors. See Mr. Overman's general discussion on the importance of friction materials in handling equipment, Part I, January, p. 36.

ALL friction materials are generally held in position by rivets or bolts. There is, however, a decided trend today to the practice of bonding or fusing of such materials to the shoe or band. While this type of application has gained considerable prominence in the automotive field, it is still in its infancy in industrial applications. We will dwell somewhat on this subject in the third and final article.

Importance of Fastening Method

The choice of fastening is very important, for the reason that wear of the friction material often allows the fasteners to come in contact with the drum. This continued contact through application of the brake or clutch will tend to cut or score the drum surface. While some materials can retard this scoring action, others tend to accelerate it. Costly repairs result if this condition is allowed to continue over any extended length of time.

The materials generally used for rivets or bolts are brass, copper, aluminum or their respective alloys. Brass fasteners are superior to the other types because of their ability to better resist abrasion; under normal conditions they have much less tendency to score. Copper fasteners are still used quite extensively. They are strong and ductile. But they have a tendency to drag and string off on the drum and, consequently, can cause erosion on the drum surface. Flat head, semi-tubular rivets should be used where rivets are required. Tapered flat



A TYPICAL REVOLVING superstructure of a power shovel and crane in the ¾ yard class. Shown are the friction clutches and brakes which control the transmission and direction of power for all operations of the machine. "A"—clutches; "B"—brakes. This exhibit and that of the clutch shaft subassembly, facing page, by courtesy of the Thew Shovel Co., Lorain, Ohio.

Material Handling Equipment

By H. W. OVERMAN
Brake Specialist, Philadelphia.

head bolts should be used where bolts are required.

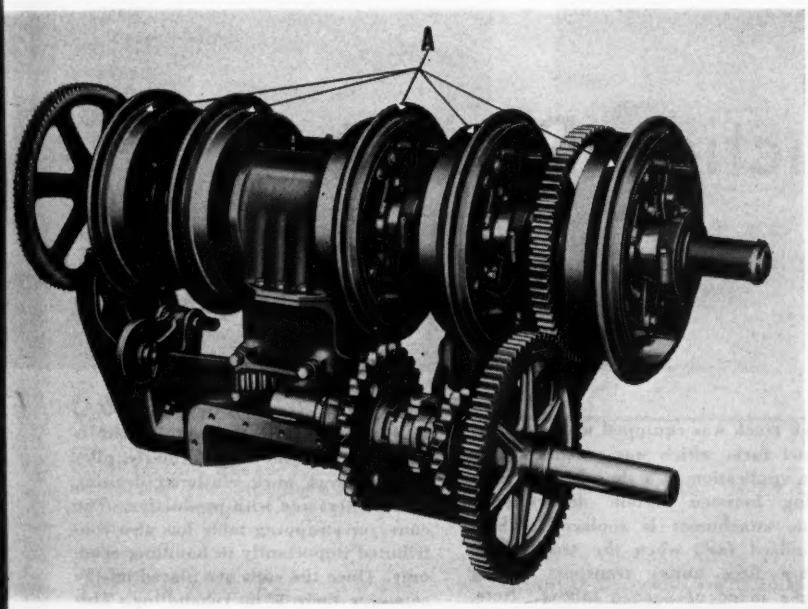
The minimum length of rivet should be the thickness of the lining under the rivet head plus thickness of the band or shoe plus the diameter of the rivet body. The maximum length should be the thickness of the lining under the rivet head plus thickness of the band or shoe plus the diameter of the rivet body multiplied by 1.25. Rivet lengths are in increments of $\frac{1}{16}$ measured from the underside of the head to end of the shank. Rivet heads should be twice the diameter of the body when used on woven liners. This need not apply when they are used on most molded liners.

Bolts should be long enough to extend through the shoe far enough to permit the assembly of a lock washer and nut.

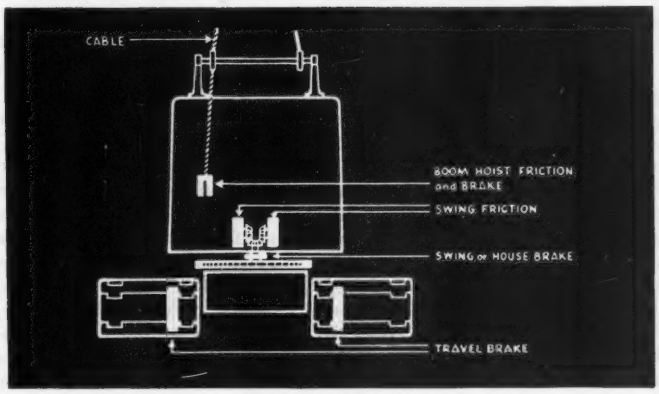
Caution on Industrial Liners

Many replacement liners are furnished jig drilled and countersunk by the friction material manufacturer. However, the nature of many applications in the industrial field makes this impossible. This is primarily because a great many manufacturers of industrial equipment drill both band and lining at time of fabrication. There is also another reason why many liners must be furnished undrilled. External brake or clutch bands stretch considerably after long periods of operation, particularly where high operating temperatures are being reached constantly. In such cases

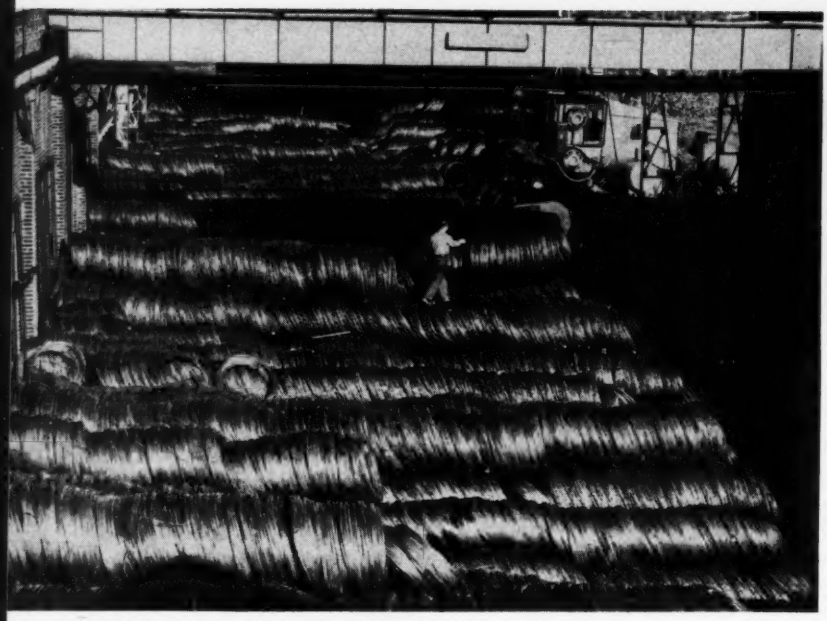
(Continued on page 42)



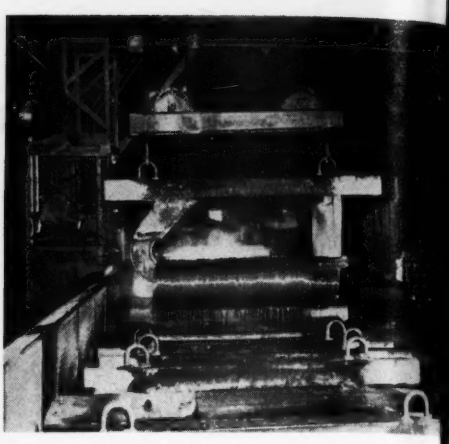
THE CLUTCH SHAFT subassembly on which are mounted five identical shoe type clutches, lined with friction materials, indicated by "A". The shaft is chain driven by the engine, and the five clutches serve to transmit engine power into machine operations.



OTHER FRICTIONS AND BRAKES: Boom hoist friction and brake, also swing or house brake and travel brake. (Some units do not have swing or house brake.)—Exhibit at right, by courtesy of the Thermoid Co., Trenton, N. J.



1 A TRAVELING BRIDGE CRANE with a hairpin hook picks up 3300 lb. of coiled wire for transfer to initial processing stations. In plant, operators do no physical lifting.



2 IN PLANT, a short-span bridge crane advances the wire through successive cleaning operations. See use of fork truck, next photo, shown on opposite page.

Cost-Reduction Project In A Wire Mill

THE cost-reduction methods illustrated in this pictorial series were developed by the Atlantic Wire Co., Branford, Conn., a leading New England specialty wire mill. The move was necessary as a means of meeting competition. A profit could be realized only on the conversion process. A peculiarity of the industry is that the company's suppliers are its biggest competitors.

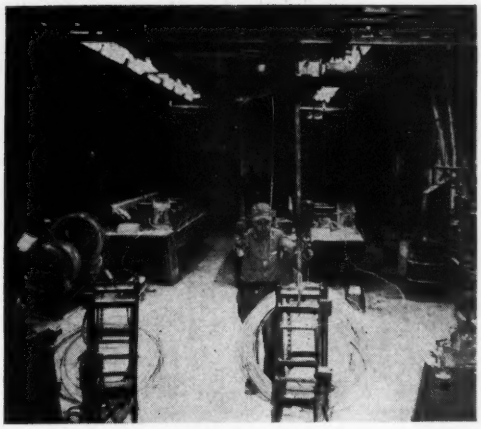
Utmost economy of movement was the principal means of cost-cutting since production methods were pretty well standardized. The photo series presents all applications, and a special report is included in this article on a key department which was a bottleneck. A traveling bridge crane spans the receiving-storage yard, and performs all car-unloading, storage and transfer tasks to the plant. Short-span bridge cranes move the loads within the plant through the cleaning tanks, using conventional hairpin hooks. A standard fork truck was equipped with a single-tined fork, which was extended with the application of a shoe for coil handling between certain departments. This attachment is replaced with a standard fork when the truck (and other fleet units) transport tiering racks made of square tubing. Note, among other equipment, the steel strapping table for coils. It has the strapping tool in the center, and is operated by a pedal.

Motion economy has thus brought production economy. The yard crane lifts are approximately 3300 lb. each. The stocking pattern gives quick stock selection without rearranging piles. Within the plant, the coordination of the fork truck with the cleaning cranes maintains the flow at an economical pace. Of particular importance are the storage racks, which are used both for storage purposes and in-process work carriers. Their tiering feature conserves floor area, which is at a premium in a mill where fabricating equipment is necessarily spread out. Formerly, piles of in-process work cluttered drawing areas, interfered with production. The conveyor strapping table has also contributed importantly to handling economy. Once the coils are placed on the conveyor there is no rehandling. This table is the link between final drawing and shipping.

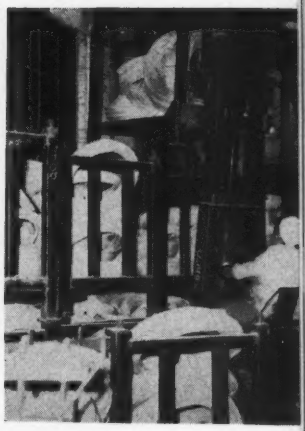
See the opposite page for the special report on how the bottleneck was eliminated in the cleaning house.

8 Bottom, Facing Page: ELECTRIC HOIST spots the outgoing coils on belt-powered roller conveyor which delivers to a gravity roller conveyor in the vehicle.

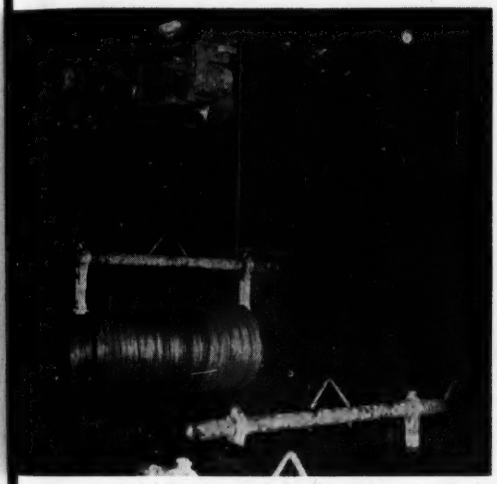
3 A STANDARD FORK TRUCK was adapted by removing one tine and adding an extension shoe for inter-departmental moves of the coiled stock.

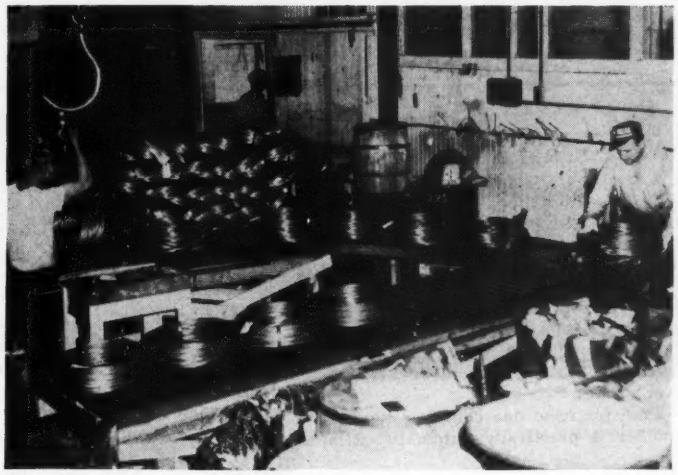


4 AN ELECTRIC HOIST, operating on a monorail, spots wire on a positioning device which feeds to one of the several drawing benches.



5 SQUARE TUBULAR stacking-type racks are used for storage purposes and also as special work carriers for travel between departments.





6 & 7 Top: TRACTOR - POWERED electric hoist lowers coils into a tank at the start of the final cleaning cycle. Note the yoke-type carrier. Right: INSIDE OF COIL is placed against guide on the strapping table. Strapping is fed around coil and back into the tensioning head.

How Atlantic Wire Co. Smashed A Bottleneck

THE wire cleaning house at the Atlantic Wire Co. was the last department to be modernized in the over-all program. It was described by company officials as "a bottleneck to an otherwise efficient material flow".

THE PROBLEM: To effect a handling system which would facilitate the flow of a tremendous amount of wire through a small department and prevent the slowing of production and the decrease of total output.

Before, the job of transferring material from tank to tank in the cleaning house was slow and tedious. The old equipment was steam-powered, resulting in high maintenance costs; the equipment was a drain on the company's power plant. Only one load could be handled at a time.

The department was congested and disorderly. Incoming material was left on the floor awaiting processing. Because of the inability of the equipment to handle large loads, incoming material backed up from this station into surrounding areas, and other departments were forced to provide storage. Storage areas in all departments became increasingly cramped, until plant-

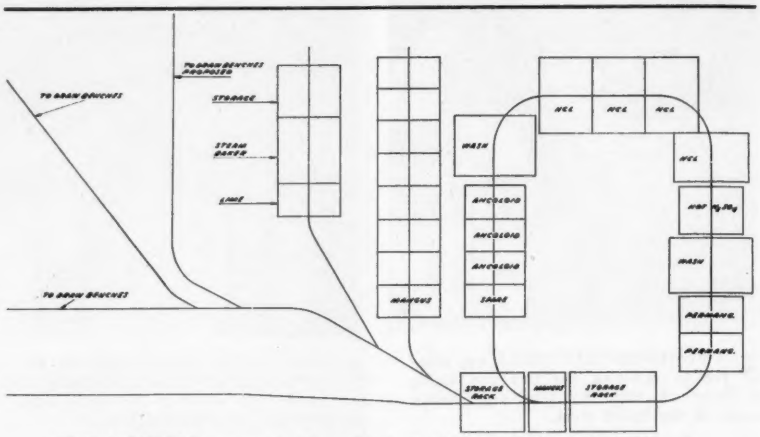
wide operation stagnated.

THE MEANS: Last summer, the company installed a closed monorail system serving 16 tanks in the main cleaning area. Spur lines serve coating tanks and extend to draw benches adjacent to the cleaning house. Two additional overhead lines are contemplated for more distant drawing benches.

Three tractor-powered electric hoists are used for transferring the material. Automatic take-up devices for the hoists' electrical cords are located at several points throughout the department preventing damage to the cords and inconvenience to operators.

THE PAYOFF: Material is now processed in the department as soon as it arrives. Temporary storage area at the start of the line is minimized and other departments need not hold back wire to be cleaned. At the discharge end coils are either spotted on racks for immediate delivery to more distant departments or taken directly to adjacent drawing benches via the monorail.

The operations are easier, far faster, and a great deal more efficient. What was once a bottleneck is now the pacemaker department.



THIS MONORAIL system is the major tool which has broken the bottleneck.

Conveyor System For Bananas — From Ship to R. R. Car

AN INGENIOUS combination of conveyors has been developed by the United Fruit Co. to eliminate most of the manual handling of bunches of bananas in transferring them from holds of ships to rail cars. To effect this, fabric pocket type elevating conveyors and conventional belt conveyors are combined with a special pallet type conveyor, shown in the photos. The latter takes the bananas around curves and over grades.

Transfer from one conveyor type to another is practically automatic, with one operator stationed at each transfer point. Operation of all conveyor sections is tied together in such a manner so that any operator can interrupt the movement of all lines simultaneously with a convenient foot switch, if necessary.

The carrying surface of the pallet type "curveyor" is equivalent to a flexible troughed belt (flexible in a lateral plane), the flexibility being obtained through the use of individual rubber-covered pallets. The latter, spaced on four-inch centers, are mounted on a cable. The covering of rubber is designed to prevent bruising of the fruit.

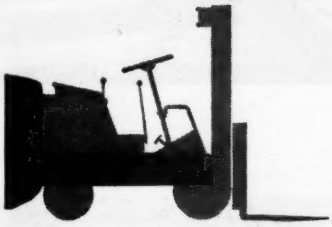
The fluid drive motor and compact speed reducer are located near the junction point of the "pocket" and pallet lines, as shown. The foot switch frees both hands of the inspector. Details of the conveyor were worked out by the United Fruit Co.'s Webb Kingsbury in cooperation with a manufacturing company.—*Courtesy, Cone-Drive Division, Michigan Tool Co., Detroit.*

"POCKETS" deliver bananas. Drive motor with speed reducer, switch at operator's foot.

TILTING PALLETS of conveyor transfer fruit to troughed belt for delivery to rail car.

Rugged and Ready

—for the toughest mass handling jobs!



UNIT FRAME CONSTRUCTION

—another Towmotor efficiency feature

For counter-balancing the load, Towmotor puts as much weight as possible in the frame itself—where it adds strength and stability for maximum, trouble-free service.

See the New Towmotor Movie, "The One Man Gang," right in your office.

Towmotor's exclusive one-piece, all-steel frame construction provides an unusually sturdy unit—***extra*** rigid for rugged service, ***extra*** easy to inspect and maintain. That's why Towmotors ***stay*** on the job dependably . . . even in 24-hour daily service. Compare Towmotor with any other fork lift truck and you will see why Towmotor's rugged features make every **M**ass **H**andling job easier, faster, safer. 10 models plus standard and specially designed accessories handle loads from 1,500 to 15,000 lbs.—a Towmotor for ***every*** job. Write for a copy of "Handling Materials Illustrated." Towmotor Corporation. Division 8, 1226 E. 152nd St., Cleveland 10, Ohio. Representatives in all Principal Cities in U. S. and Canada.

every handling job is easier with TOWMOTOR MH!

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THE ONE-MAN-GANG®

FORK LIFT TRUCKS and TRACTORS

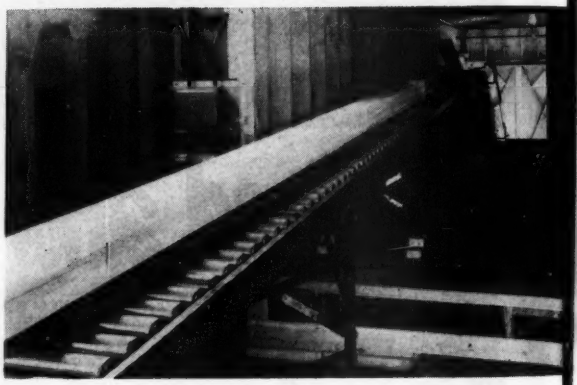
RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

OPERATOR ON DOCK RAMP loads bundled window components onto tail of powered belt conveyor.

How this lumber yard effected . . .

10 major operating improvements

1. Reduced receiving time (unloading cars.
2. Reduced shipping time (quicker service to pick-up trucks).
3. Reduced material damage.
4. Reduced traffic jams (formerly caused by company's delivery trucks).
5. Reduced cost on incoming shipments.
6. Reduced cost on outgoing shipments.
7. Reduced effort.
8. Reduced causes of accidents.
9. Increased operator interest.
10. Increased over-all efficiency.

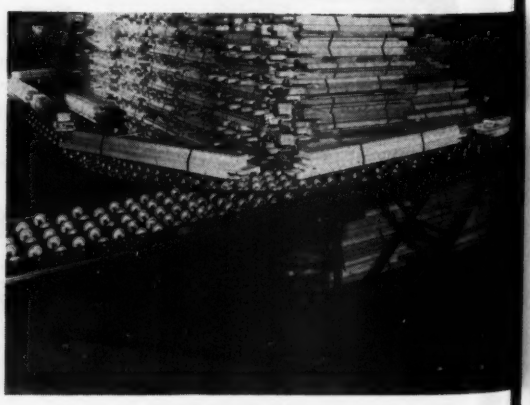


INCLINED BELT transfers units to the gravity roller conveyor which travels through bridge.

WITH today's unstable price picture, many companies endeavor to keep inventories of finished goods as low as possible. Concerns which stock large numbers of items must still carry ample inventories to meet all demands.

Such a concern is the Evans Lumber Co., Buffalo, N.Y., which maintains a stock of more than 100 kinds and sizes of semi-solid and solid doors, and door and window components.

About a year ago, the company's management reasoned that "the faster the material was handled in and out of the warehouse, the less goods needed to be kept on hand,



CURVES AND SWITCHES are designed to facilitate flow of frames to various storage locations.

NEW BAKER FORK TRUCK
Model FT

Costs less to buy— Does more work per dollar— because of its 100% FUNCTIONAL DESIGN

126 INCH TELESCOPING LIFT
64 in. single lift, 63 in. free lift, with 83 in. overall height. Low-pressure hydraulic system for greater safety and lower maintenance.

Specifications

CAPACITY—3,000 and 4,000 pounds.

WIDTH—35 inches.

TURNING—Operates in 64 inch minimum intersecting aisles with 36 inch forks. Outside turning radius 73 inches. Requires only 89½ inches plus length of load for right angle turn.

WEIGHT—with battery—approximately 6,600 pounds for FT-30 (3,000 pounds capacity), 7,500 pounds for FT-40 (4,000 pounds capacity.)

BATTERY—36 V., 400-500 Amp.-hrs.

SPARK ENCLOSED CONSTRUCTION—available at extra cost for safe intermittent operation in gas and dust laden surroundings.

GREATER VISIBILITY
Due to off-center position of operator, cut-away design of dash panel, and construction of uprights and hoist.

OPERATOR CONVENIENCE
Comfortable padded seat and backrest. Entry from either side. Tilted-type automotive steering wheel. Directional, hoist, and tilt control levers to right of wheel. Foot-size accelerator pedal.

UPRIGHT GUIDES
Heavy formed channels welded into a unit assembly. Location of pivot minimizes increase in overall height when tilting. Designed for quick interchangeability on job to uprights of varying heights to permit highway truck or boxcar loading, and extremely high tiering with the same truck.

NO-PLUG CONTROLLER
Drum type, direction selected by manual control, 5 speed foot-operated accelerator. Dead man control. Circuit employed makes plugging impossible.

SOFT-TOUCH BRAKES
Air-cooled drum type, mechanical. Mounted on motor shaft for braking through gear train and differential, providing equalizing action. Dynamic braking in varying degree obtained by reversing controller and advancing accelerator.

CUSHION TIRES
Provide a softer ride, longer wear, high power efficiency and greater traction.

WORM DRIVE AXLE
Exclusive rugged and simple design for maximum efficiency and long life.

BAKER-BUILT MOTORS
Travel and auxiliary motors designed by Baker especially for industrial truck application.

WIDE ANGLE STEER
Heavy-duty, automotive type shockproof steer with proper geometry to prevent scrubbing of tires. Knuckle-type axle with rubber-mounted longitudinal pivot provides compensation for uneven roadways.

ALL-STEEL FRAME
Heavy gauge, unit-welded with integral hydraulic tank. Steel plate bumper providing effective counterweight, welded integral with frame for greater rigidity and strength.

Learn How Little This Truck Costs!
Write for full descriptive data and prices and see for yourself why the Baker FT costs less to buy and does more work per dollar because of its 100% functional design.

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LIGHTWEIGHT!
FAST!
CM CYCLONE
Model M • HEAVY DUTY
HIGH SPEED HOIST

96% EFFICIENCY
conserves worker energy and increases productivity

42% FEWER PARTS
simplifies maintenance

63% LESS WEIGHT
1 ton weighs 35 lbs.
2 ton weighs 59 lbs.
3 ton weighs 90 lbs.

Plus SEALED-IN LIFETIME LUBRICATION
prolongs life... reduces wear

Plus HERC-ALLOY
America's First and Safest Steel Load Chain

The CM Cyclone Model M, constructed of today's stronger alloys of steel and Alcoa Aluminum, is years ahead as a production and maintenance tool. New type load brake with smooth, positive control aids in spotting and assembly work. Thousands of these extra value hoists are already in service, daily demonstrating their superior performance.

Ask your distributor to show you the new Cyclone Model M Hoist

CHISHOLM-MOORE
HOIST CORPORATION
(Affiliated with Columbus McKinnon Chain Corporation)
GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.
SALES OFFICES: New York, Chicago and Cleveland • Distributors Everywhere

and receiving could be more closely timed to expected demands".

Too Much Handling

Because doors, and frames for doors and windows are usually sold in small lots to retail dealers, they were suited to handling individually or in small bundles. Formerly, the bundled frames were unloaded from rail cars on highway trucks for delivery to stockpiles. (Bundled stock weighs from 10 to 80 lb. each.) Doors, ranging in weight from 30 to 80 lb., were similarly handled. The goods were trucked to a storage building, unloaded by hand and lifted eight ft. to operators on a balcony.

The operation required two men at the car for unloading and five men on the upper floor of the storage building. These were temporarily removed from other jobs. Trucks, normally used for delivery purposes, were tied up at the receiving stations. Ordinarily, it required four days to unload a typical car of components.

Lifting of the doors to the balcony level necessarily entailed frequent rest periods. Other phases of handling were equally difficult and time-consuming.

The manual method involved the usual rehandling: 1. Placing loads from rail cars onto highway trucks. 2. Unloading trucks and feeding to men on the upper level. 3 Placing loads on carriers for delivery to racks. 4. Placing stock in storage.

Conveyors for Continuous Handling

A survey was made for the purpose of bringing operations up to date, and the outcome was the choice of a conveyor installation. Conveyor movement was well suited to the items sold in small quantities.

To house the installation, the company constructed a 12'x16'x16' building located about seven ft. from the rail siding and connected to the main storage shed by a 30-ft.-long enclosed bridge, with an overhead door opening on the track. A 24"x33' inclined revers-

ible belt conveyor was installed, which extends from the door up 10 ft. to the bridge, where it connects to a 22"x25' section of gravity roller conveyor. This section delivers through the bridge to a system of gravity wheel conveyors which extend throughout the storage area.

The incoming frames and doors are placed from the cars on a powered tail section which is hinged to the main belt (a bridge ramp connects the car and the building). The material is conveyed by the belt, then delivered by gravity to the designated storage location

SPEEDING AUTOS TO RAIL CARS—As 47 automobiles per hour roll off the production lines of a west coast automobile assembly plant, the task of keeping rail cars moving out of the plant at this speed still presents no serious problem. A new record of rail car

loading has been established by the adaptation of a conventional tractor tug which is equipped with a special hydraulic jack. The rear ends of the largest cars are jacked up and moved rapidly to the correct position in the rail car. This jack, coupled to the front of the tractor tug with a toggle ball joint, is raised hydraulically by a foot lever operated from the platform of the tractor. It is lowered by means of a hand lever. In slack periods, simple disconnection of the hydraulic line permits the tractor to be used without the jack in other plant operations. With this equipment, two men can load six rail cars per hour. This has effected a savings of up to 500 percent in material handling cost on the loading dock. —*Courtesy, Salsbury Corp.*

over the branch lines. One operator loads the conveyor and two men are located at the discharge end to stock the material.

Three men now unload a rail car containing 60,000 lb. in two days—a total of 48 manhours. This is a saving of 176 manhours over the old method. The men who were previously pulled off their jobs to

KWIK-MIX

Moto-Bug

has power forward and reverse

● This low-cost power wheelbarrow takes *all* the hard work out of hauling sand, coke, scrap, etc., because it has power both forward *and reverse* from 1½ to 4 m.p.h.

● Easily hauls 10 cu. ft. in big hopper, or carries 1200 lbs. on sturdy 4-ft. flat-bed. Result: bigger loads per trip, less operator fatigue, more loads per day.

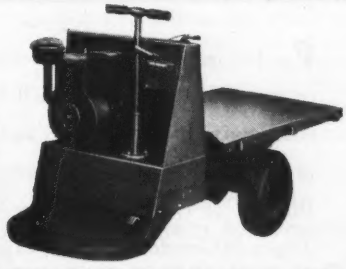
● *Standard-make*, 4 h.p., 4-cycle, gasoline engine takes full load up 20% ramps or grades. Handy 33" width clears narrow aisles and doorways . . . turns in own length.

● Moto-Bug has positive steering, direct to dual rear wheels. Extended steering handle easily converts to "T" for varied operations.

● Riding step, optional, plus positive steer arrangement, and forward and reverse power, let operator ride while traveling, spotting, and backing up.

● Dual steering wheels are standard equipment . . . dual drive wheels optional, for plenty of rubber-tired traction, flotation and handling ease on or off pavement.

● You'll find this job-proved Moto-Bug the lowest-cost answer in foundries, factories, around plant yards, etc. . . . makes man-hours 3 to 4 times more productive.



Send for complete Moto-Bug facts to: KWIK-MIX CO., Port Washington, Wis.

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KM26

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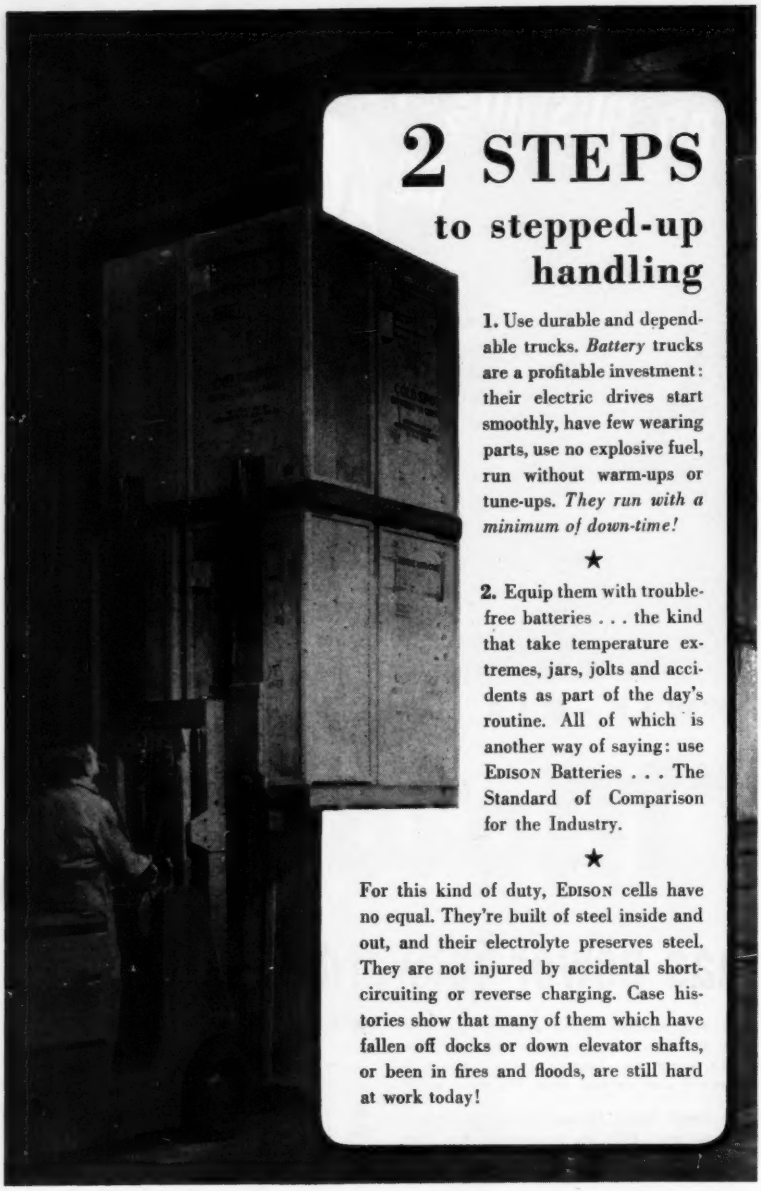
PORT WASHINGTON, WIS.
(Koehring Subsidiary)



2 STEPS
to stepped-up handling

1. Use durable and dependable trucks. *Battery* trucks are a profitable investment: their electric drives start smoothly, have few wearing parts, use no explosive fuel, run without warm-ups or tune-ups. *They run with a minimum of down-time!*

★

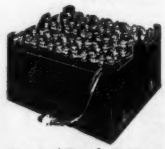
2. Equip them with trouble-free batteries . . . the kind that take temperature extremes, jars, jolts and accidents as part of the day's routine. All of which is another way of saying: use EDISON Batteries . . . The Standard of Comparison for the Industry.

★

For this kind of duty, EDISON cells have no equal. They're built of steel inside and out, and their electrolyte preserves steel. They are not injured by accidental short-circuiting or reverse charging. Case histories show that many of them which have fallen off docks or down elevator shafts, or been in fires and floods, are still hard at work today!

For full information, write today for free booklet SB 2039 and a current price quotation. You'll find EDISONS cost little more than other makes of batteries . . . and they pay this back over and over in terms of low upkeep and long, long life. *Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, New Jersey. In Canada, International Equipment Company, Ltd., Montreal and Toronto.*

EDISON
Nickel · Iron · Alkaline
STORAGE BATTERIES



Typical Truck Battery

help unload can now devote themselves to their regular duties without interruption. This means that certain phases of the company's operations need not be neglected when material is received.

With the continuous conveying method, the total number of individual handlings has been reduced from four to two, as follows. 1. Place the material on the conveyor. 2. Remove and stack. Another important factor has been the elimination of arduous physical lifting tasks; the resultant improved personnel relations cannot be over-emphasized.

Another problem which the company faced was high demurrage costs. Formerly, rail cars were tied up at the receiving dock for days, whereas now they are moved out in less than one-third the time. Company officials have estimated that when more than one car is to be unloaded, the new handling methods have saved approximately $100 per car in demurrage charges alone. When only one car is unloaded (which is not usually the case), the saving is less, but these economies are definitely on "the plus side of the ledger."

Floor Trucks for Doors

Solid and semi-solid doors are removed from the inclined belt and placed on 1-2-1 stake trucks for movement to storage in another section of the building. Frames are transported to storage locations via a 130-ft.-long gravity wheel conveyor. The wheel conveyor system includes a curve and a switch (which affords right-hand in addition to straightline travel).

It was noted earlier that the company stocks over 100 different sizes and kinds of door and window components. An incoming rail car often contains several dozen types. It is necessary for operators on the upper level to know in advance what types are coming so that the switch may be set and additional gravity sections added when necessary.

For this reason, the company installed a communication system.

An operator, at the car door, calls the type he is loading, and his voice is picked up by a voice box and relayed upstairs. It is not necessary for him to leave his loading station in order to send the information. It has not been possible to determine the dollars-and-cents value of the communication equipment, but company officials have been unanimous in their praise. Before the system was installed, the speed of the belt had to be decreased; even so, confusion often resulted.

Racks and Steel Strapping

Goods are stacked in wooden racks or cross-hatched on the floor. Some loads are steel strapped in bundles (for example, head and sill or side pieces for window frames). Others are tied together, while larger units are stacked individually.

For order picking, loads are taken from stock and placed on the floor trucks (usually customers' orders will specify a great range of types and sizes of items. For large orders of a single kind, or orders indicating only a few types, the conveyor system is used. The reversible belt delivers the load to operators at the bottom, who move the material out a side door of the new building addition. For large orders, additional sections of wheel conveyor are set up to transport the out-going goods through this door directly into the waiting highway vehicle. This arrangement is giving flexibility for the varied order requirements.

To recapitulate the main benefits which accrued to the Evans Lumber Co. as a result of the modernized material handling installation: 1. Manhours have been reduced by about 66 per cent. 2. Better working conditions through simplified job requirements. 3. Number of individual handlings reduced from four to two. 4. Important economies in demurrage charges. 5. Highway vehicles are no longer tied up during receiving. 6. Better personnel relations.

What do you handle?

NO matter what the size, shape or content of your packages, a Farquhar Conveyor will move them faster, easier, *cheaper!* If you handle packages up to five hundred pounds . . . if you move products either horizontally or from floor to floor . . . if you load, stack, pile or store any type of packaged goods . . . a Farquhar Conveyor will *slash* your handling costs and *boost* your margin of profit!

In all kinds of industries, stores, buildings—wherever packaged or bulk materials are handled — enthusiastic Farquhar users report "handling costs cut in half!" . . . "Farquhar Conveyor paid for itself in one year!" . . . "doubled our production as compared with previous hand methods!" See Farquhar first for the solution to *your* materials handling problem. Portable, semi-permanent or permanent installations.

Farquhar CONVEYORS SAVE YOU MONEY

Mail this coupon for complete information

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Gentlemen:
I am interested in how Farquhar Conveyors can save me time and money. Please send me complete information. I handle packages weighing.....pounds. I handle bulk materials:.....

Name.....Title.....
Company.....
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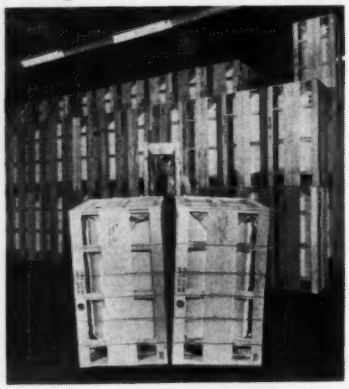
City.....Zone.....State.....

HYDRAULIC PRESSES • FARM EQUIPMENT • FOOD PROCESSING AND SPECIAL MACHINERY

IDEAS YOU CAN USE

Tested Techniques for Better Production

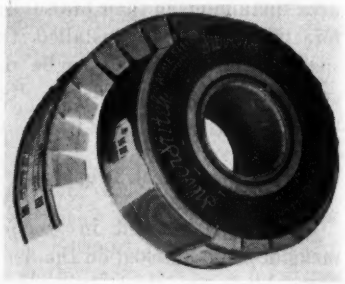
NEAT HANDLING, WAREHOUSING—The Hotpoint Corp., Milwaukee, is handling more water heaters in less time with the method shown here. The two fingers of the fork lift truck pick



up two crates at one time. The fork tines engage the top band cleats of the wirebound crates. While this is not recommended as standard practice, the method was effective in speeding a heavy volume of water heaters through the plant. Note, also, that the crated units make for neat warehousing.

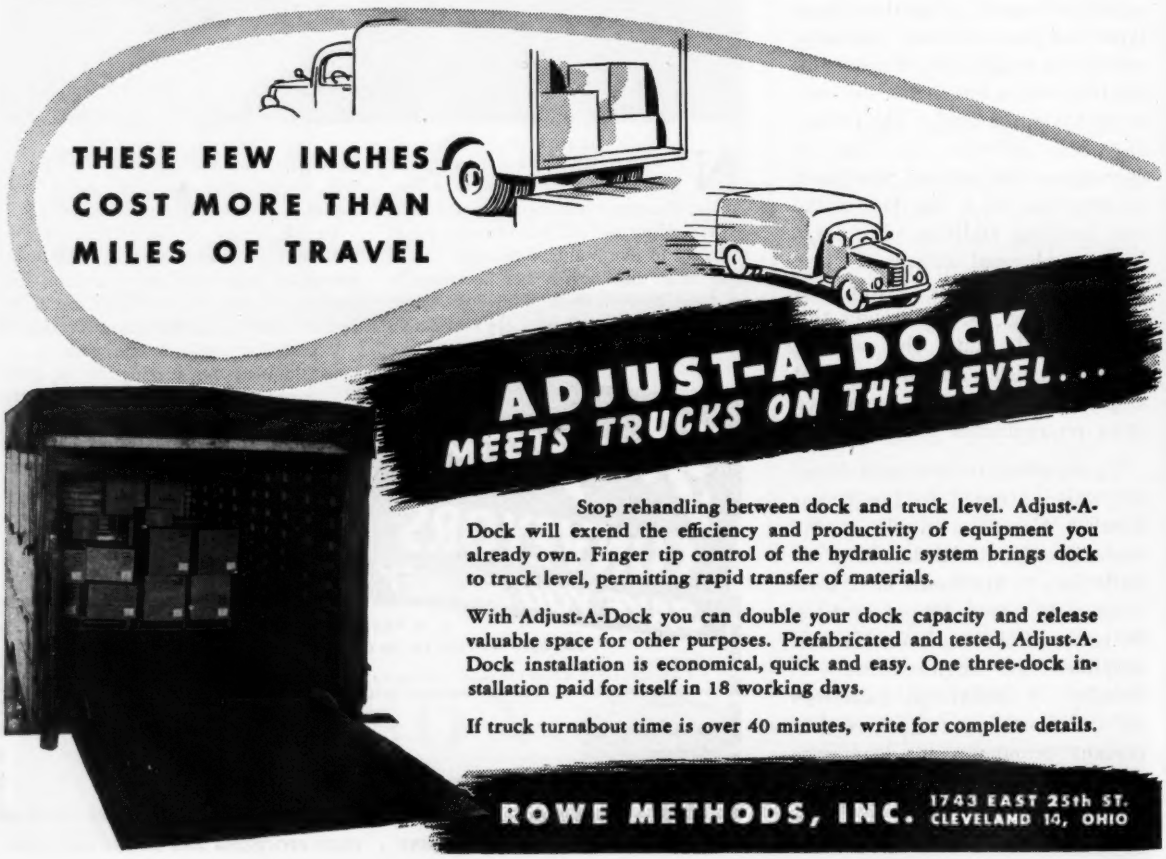
WIRE SPOOL AND SHIPPING CONTAINER COMBINED IN SOLID FIBRE BOX—Acme Steel Co., Chicago, is packaging stitching wire in a new combination, solid fibre box. The package serves as a spool on which the wire is wound as well as a shipping container. When the customer uses the wire, the package reverts to its initial use as a spool.

The spool is made from five pieces of solid fibre. The core, which is scored and tabbed, is bent into a circle. Then a plain disc is slipped over the tabs on each side. The tabs are folded outward from the circumference of the core, like short spokes on a wheel, and a printed disc of slightly smaller outside circumference is placed in position over the tabs, and the entire assembly is stitched together with wire. This forms a sturdy spool which is light in weight for handling. Fifty



lb. of stitching wire is then machine wound on this solid fibre spool.

To make a totally enclosed shipping container and protect the face of the coil of wire, a cover is placed around the circumference of the spool. This cover is like the core part of the spool, except the scored tabs are folded in from the circumference. These tabs are slipped in between the two discs form-


THESE FEW INCHES
COST MORE THAN
MILES OF TRAVEL
ADJUST-A-DOCK
MEETS TRUCKS ON THE LEVEL...
Stop rehandling between dock and truck level. Adjust-A-Dock will extend the efficiency and productivity of equipment you already own. Finger tip control of the hydraulic system brings dock to truck level, permitting rapid transfer of materials.
With Adjust-A-Dock you can double your dock capacity and release valuable space for other purposes. Prefabricated and tested, Adjust-A-Dock installation is economical, quick and easy. One three-dock installation paid for itself in 18 working days.
If truck turnabout time is over 40 minutes, write for complete details.
ROWE METHODS, INC.
1743 EAST 25th ST.
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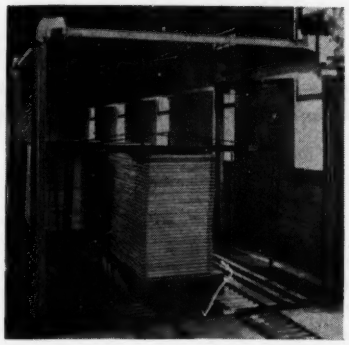
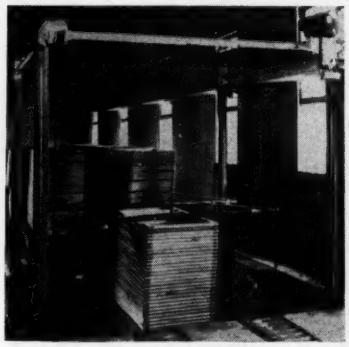
Your Ideas Are Welcome—"Ideas You Can Use" is open to short subjects—on engineered applications that are doing a better job. Send only operation-tested ideas with an illustration. FLOW, 1240 Ontario St., Cleveland 13, Ohio.

ing the sides of the spool. A single band of steel strapping is placed around this cover and the spool of wire is completely packaged, ready for shipment. This method of enclosure forms a complete seal which is designed to protect the wire from weather, dust and other damage during shipment and storage. At the user plant, the package is quickly and easily installed on the coil holders, it being necessary only to cut the single steel strap and slip off the cover. — *Courtesy, Gaylord Container Corp.*

BATHING WITHOUT REHANDLING—This elevating unit, erected above a pit containing a termite-protective bath, lowers skids of sashes and doors into the solution and after adequate immersion raises them to floor level where they move along to the



next operation. Thus, no rehandlings are necessary and the process, automatically timed, takes but three minutes. This elevating unit, in use at the



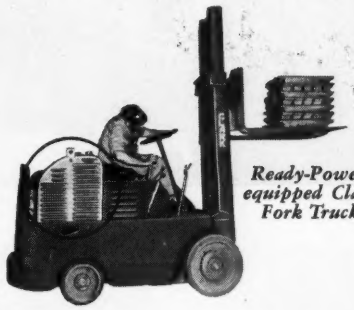
Goshen Sash & Door Co., Goshen, Ind., has a 6'6"x8'10" platform, a torque tube underclearance of 136", 440-volt, 3-phase, 60-cycle power unit, and a horizontal and pendant rope control.—*Courtesy, Service Caster & Truck Corp.*

WORLD'S STRONGEST TAPE—What is said to be the world's strongest tape with a pressure sensitive adhesive

(Turn to page 53)

PEAK PRODUCTION EVERY HOUR

When Electric Trucks are Equipped with READY-POWER



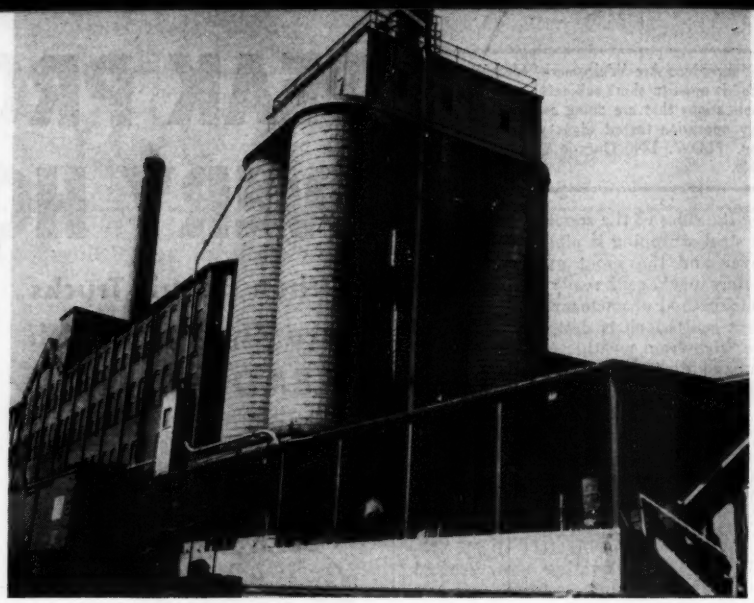
Ready-Power-equipped Clark Fork Truck

There's no tapering off or let down when your industrial truck is powered by a Ready-Power gas-electric Power Unit. For "constant-peak" power is generated right on the truck chassis—by an engine-driven direct current generator. No matter what make or type of electric truck you use, it will pay you to investigate Ready-Power. Write today for details.

Ready-Power-equipped Elwell-Parker Fork Truck

THE READY-POWER CO.

3838 Grand River Ave., Detroit 8, Michigan

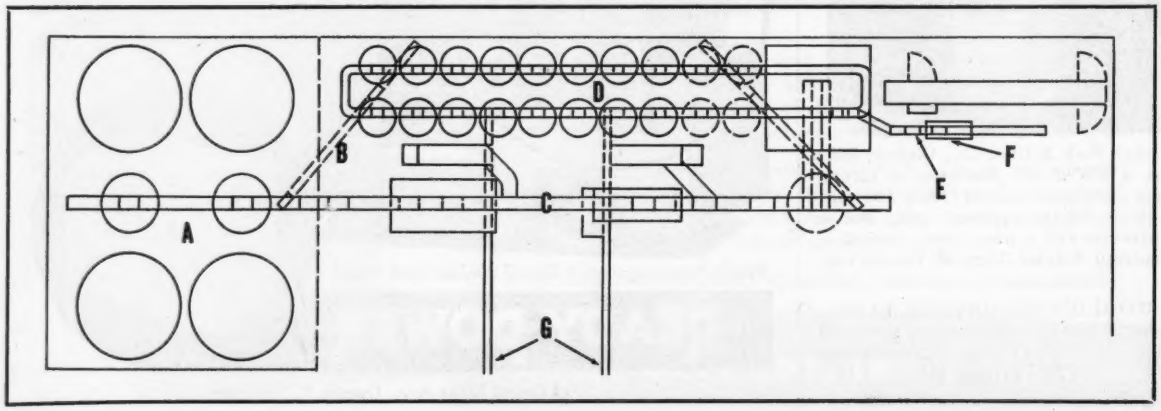


1 EACH OF FOUR 60 ft. storage silos has capacity of 3½ box cars. Pneumatic unloading system has capacity of 12 tons per hour. From pneumatic receiver (A), carlot materials drop on vibrating screen, thence to rotating screw conveyor. Screen, next page.

Batching By Engineered Bulk Flow

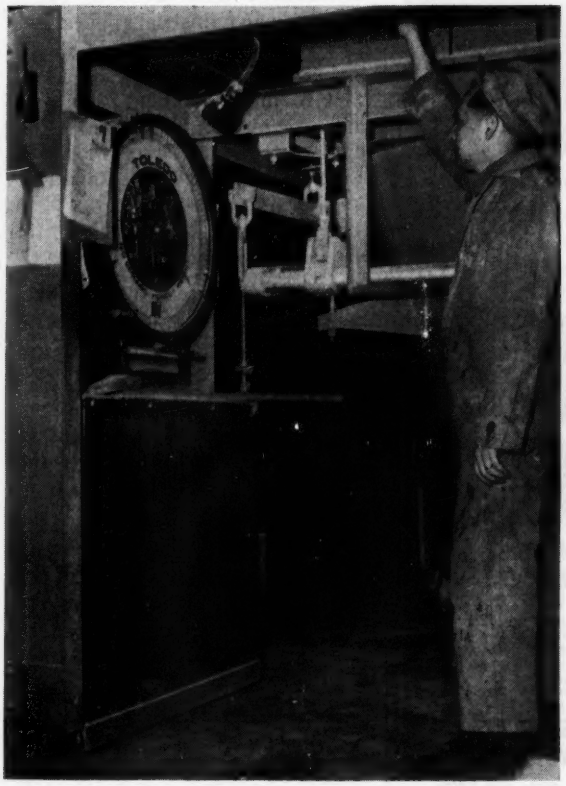
A CONTINUOUS conveyor system in conjunction with concrete storage silos and automatic weighing scales for a batching operation have accomplished these results at Dr. Hess and Clark, Inc., Ashland, Ohio, one of the country's largest manufacturers of pharmaceuticals for farm animals. 1. Increased batching capacity from 1200 lb. to 5000 lb. per batch. 2. Concentrated the batching operation on one floor level, thus releasing areas surrounding individual batching stations on several floor levels for storage and/or processing needs. 3. While 54-hour weekly production previously had difficulty in keeping up with sales, the present operation is not only meeting requirements with a 40-hour week, but has sufficient capacity so that the company's packaging operation in Canada could be discontinued.

PARTIAL FLOW DIAGRAM: "A," Silos with Scales (two smaller circles); "B" Smaller Redler delivering to main Redler, "C;" "D," small-quantity tanks; "E" & "F," dumping and crushing; "G," Redlers delivering to packaging.

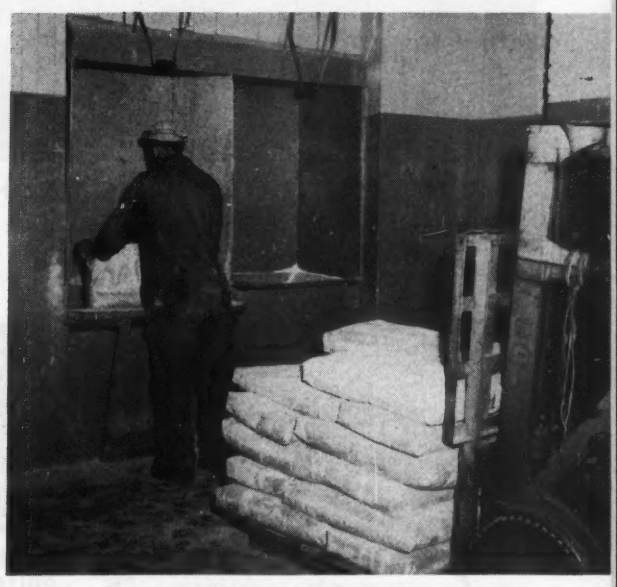


2 THIS IS ROTATING 10" screw conveyor atop silos, with vibrating screen (B), which discharges 4 materials into any of four silos. Formerly bought in bags, all these in gredients were rehandled many times.

3 AT PUSH OF BUTTON, each of two automatic silo scales draws required materials from two silos. Flow is electronically controlled by one indicating, one actuating dial pointer. Mass flow is reduced to trickle.



▲ **4** WEIGH LARRY, also with scale, draws smaller quantities of other materials. Redlers deliver formula to sifter, mixer, surge bin (see flow sheet). Similar system is for insecticides.



5 BAGGED INGREDIENTS (for smaller batches) are palletized and delivered, as shown, to dumping and crushing station for Redler movement to series of 20 bins served by weight larry. Small batch precedes large.

6 CENTRALIZED STORAGE of raw materials (and some finished products) is maintained in 40' x 140' Quonset hut near car dock. Fork trucks serve storage and processing. Motorized walkie is used on the upper floors of the manufacturing building. ▶

Look at All

FOUR WAYS To get

Fast Lower-Cost Handling

1 WITH ROLLER OR BELT CONVEYORS

— Order and cleanliness — freedom from congestion — smooth flowing coordinated movement of commodities — these are the plus advantages of roller or belt conveyors, gravity or power, in addition to their time, money, and manpower economies.

2 with the EXTENDOVEYOR

— compact, mobile, easily maneuverable power-belt conveyor unit—handles packages up to 150 lbs.—reaches into cars, trucks, trailers. Available in 4 sizes — 2 models.

3 with PORTABLE ROLLER CONVEYOR

— light, easy to carry and set up where needed. Standard Litewate Sectional Roller Conveyor is a great time and labor saver in loading, unloading, storing commodities. Available in 5 ft. and 10 ft. sections — straight and 90° or 45° curves.

4 with PNEUMATIC TUBE SYSTEMS

— provide swift, sure, safe transportation of messages, documents, blueprints, samples, small parts, money; cylindrical or oval tubes 1½ inch upward with dispatching and receiving terminals for complete systems to meet your needs. Write for special bulletin SPT.

Write for Standard's general Catalog No. FL-20. Tell us what you want to handle or name equipment on which you want more information.

STANDARD CONVEYOR COMPANY
North St. Paul 9, Minn.
Sales and Service in Principal Cities

Standard
GRAVITY & POWER
CONVEYORS

BRAKE LININGS . . .
(Continued from page 27)

the holes would not align properly if drilled liners were furnished.

These facts make it essential that users either obtain suitable equipment for drilling, countersinking and riveting their own requirements or have this work performed by some qualified friction material distributor. When this work is done by a distributor, extreme caution should always be exercised to see that you get the right liners for the job. All too few of such houses carry an adequate stock of industrial type liners, and as a result many times automotive type liners are installed which are rarely satisfactory on an industrial application. Many have found it advisable to go back to the original manufacturer of the equipment, buy their lining requirements and take the liners with their bands or shoes to a supply house for installation.

When Making Your Own Replacements

If you handle your own replacement installations, the following suggestions are given for your guidance.

In drilling and countersinking liners, caution should be used to leave sufficient material under the rivet head to prevent the rivet from pulling through. This causes the liner to tear off the band or shoe. It is well to leave from ⅛ to ½ of the thickness where woven liners are employed, and never less than ⅓ of the thickness where molded liners are used.

Of extreme importance is the size of the hole in the liner with relation to the shank of the rivet. This hole should be sufficiently undersize with relation to the rivet shank so as to make it necessary to press the rivet through it with a light pressure. The rivet shank should be of such a diameter with relation to the hole in the band or shoe so that when it is upset by the riveting process it will expand tightly to fill the hole in the band or shoe.

Compression tightness of rivet

head against liner with relation to band or shoe is not sufficient for a completely satisfactory job. All too often when rivet shanks are loose in the hole in the liner, a chucking action develops — this results in either the breaking or tearing off of the liner. Loose rivets will also cause a noisy brake or clutch.

In assembling a liner to a shoe or band, it is of vital importance that the liner fit tightly against the band or shoe. No opening should occur between the two at any point. Tools are available on the market for holding the liner securely in place during riveting. Liners that do not fit properly tend to be noisy, will not work properly because of the small actual contact area, and will pull off or break up much more readily.

It should also be mentioned that practically all brake and clutch liners are supplied with at least one surface ground, and in a great majority of cases both surfaces are ground. All clutch facings for disc type installation are always supplied with both faces ground. No additional grinding should ever be attempted on this type of installation.

Brake and Clutch Drums

This does not apply, however, to brake or clutch liners used on shoes and assembled to operate internally in a drum. These liners should always, unless it is absolutely impossible, be finish ground after they have been applied to the shoe to fit the actual drums in which they will operate, if the same performance is to be obtained as when the unit was new. Friction material manufacturers provide oversize liners for this purpose. External band types are sufficiently flexible and usually provide adequate adjustment to compensate for normal drum variations, and on these installations both ground and unground lining is used with equal success. The individual application often determines whether you should use ground or unground lining.

To complete our discussion there remains one final item that should

SAVE MONEY

SAVE
Floor Space
Ceiling Space
Storage Space
Storage Time
Receiving Time
Production Time
Maintenance Time
Shipping Time

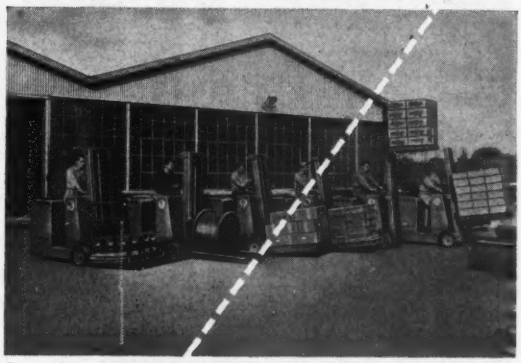
CUT COSTS WITH The "MASTER" Line

SPACEMASTER Electric Trucks
SPACEMASTER Gas Trucks (Fork Types)
MASTER JACKSTACKERS
JACKLIFT ELECTRIC Trucks
MASTER JACKTRACTORS
MASTER JACKLIFT Trucks
MASTER QUICKLIFT Trucks
MASTER REDILIFT Trucks
MASTER SPEEDLIFT Trucks
POWERMASTER Stackers
FLOORMASTER Trucks
SHIPMASTER (All-Steel 2-Wheel) Trucks
WELDMASTER Platforms
LOADMASTER Racks

WRITE FOR BULLETIN NO. 25

MULTIPLY MANPOWER • LEWIS-SHEPARD ®

The "MASTER" ® Line
MATERIALS HANDLING EQUIPMENT
"Engineered to Save You Money"



Smart fleet of "SPACEMASTER" Electric Fork Trucks handle many kinds of materials in this public utility warehouse.

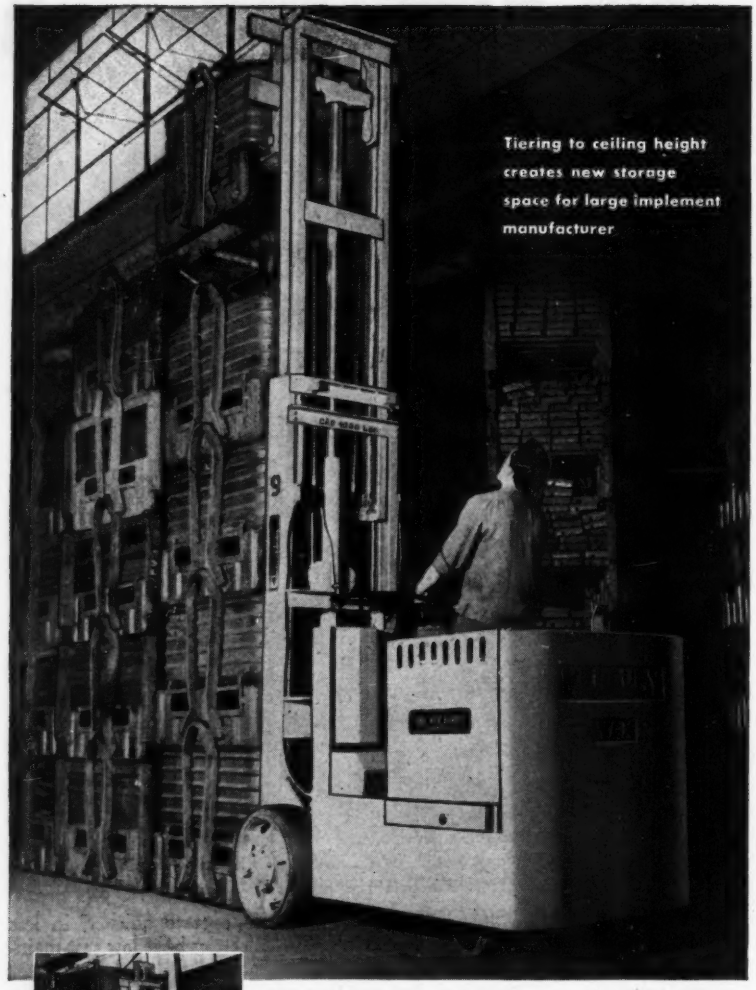
"SPACEMASTER" Electrics operate quicker, in less space. "SPACEMASTER" Electrics have low cost maintenance, less down time. "Standrive" feature lets operator pivot and turn and thus safely trail load. No need to turn truck and load around as his vision is unobstructed. Better visibility also permits accurate placement of forks and spotting of loads . . . "Deadman" brake; greater stability; plus free, quick access from either side give greater SAFETY . . . Send For Bulletin 25 Today!

Multiply Your Manpower with The "MASTER" Line

Tap this new source of profit!

LEWIS-SHEPARD
PRODUCTS INC.
115 WALNUT STREET, WATERTOWN 72, MASS.
Midwest Plant: Crawfordsville, Ind.
REPRESENTATIVES IN PRINCIPAL CITIES

5 Times Greater Inventory handled with MERCURY fork trucks



Mercury "Yak" Fork Truck quickly stacks 4000 lb. load

FIVE times greater inventory handled with no appreciable increase in plant facilities—that's the record established when a fleet of Mercury Fork Trucks replaced former handling methods for this large implement manufacturer.

Tiering to ceiling height created new storage space . . . unit handling of 2500-4000 lb. loads expedited materials from receiving, through processing to shipping. It'll pay you to consult Mercury's 38 years' handling experience. Ask a Mercury Sales Engineer to call.

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Illustrates and describes complete Mercury line of Tractors, Trailers, Lift Trucks. Request your copy on company letterhead, today.

Take it up with **MERCURY** 38 years' handling experience

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NEW METHODS OF MATERIALS HANDLING may reduce your Cost substantially. Further information without obligation.

GEMAR ASSOCIATES
Greenwich, Connecticut

receive attention: brake and clutch drums.

Cast iron, in its various forms, still is the most satisfactory friction surface. Definite strides have been made in heat treating and alloying of cast irons, which make it possible to secure metals with comparatively high tensile strength. These are much more resistant to surface checking and cracking under extreme service, and usually wear evenly and maintain a smooth polished surface.

Definite improvements have been and are being made constantly in friction materials to increase anti-scoring properties. But they still tend to score plain carbon steel even under normal operating conditions. The so-called moly (molybdenum) steel drums have been highly successful in this field.

But regardless of all the careful study and development of brake and clutch drums, there still occurs a great deal of scoring, as well as distortion, in actual service. On external types this distortion, when not too great, can be overlooked because of the flexible nature of the brake or clutch bands. By the same token some scoring can be tolerated if you are using woven linings, for they will quickly seat into such score marks and over a period of time tend to erase such scores.

The above is not true of internal types of application. Such score marks must be ground, or machined out of the drum. Distortion must also be eliminated by machining. Replacement liners after mounting on shoes should be ground to com-

pensate for the material removed from the drum. Caution should be exercised in the machining or grinding of a brake or clutch drum. Do not remove too much metal from the drum and thus weaken the entire structure. This can be carried to the point where rapid expansion of the drum in operation causes it to distort or expand away from the liner. Many times actual breakage of a drum occurs because the metal section has become too thin, through repeated machining, to withstand the operating pressures.

It is a good policy to consider replacing those drums from which it would be necessary to machine .060 to .080 to clean them up for future use. In the case of original thin steel drums this rule cannot apply, for many times they will not even permit the removal of .020 without becoming useless.

NEWS FROM THE SALES FIELD

THE High Frequency Foundry Sales Corp., 76 Beaver Street, New York City: this company has been appointed exclusive representatives to the foundry industry in New York, New Jersey, New England and Eastern Pennsylvania by the Service Conveyor Co., of Detroit. This includes a complete line of conveyors and cranes together with related equipment, such as multiple compartment storage bins, hoppers, batch measuring equipment, molding machine turntables, etc.

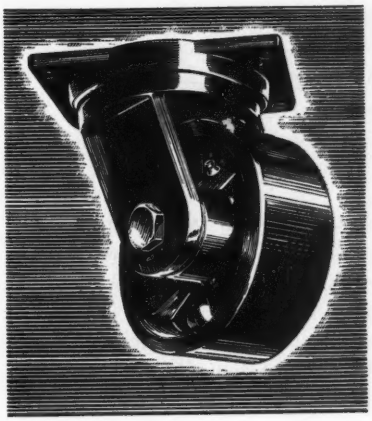
THREE new industrial truck distributorships to handle sale and service of fork lift trucks, straddle trucks, mobile cranes, and their attachments, have been announced by C. H. Collier, Jr., manager of eastern division truck sales for the Hyster Co.

A. & W. Engineering Co., 2222 N. W. 14th St., Miami, Florida, headed by John W. Fulton, president, and C. H. Scott, vice-president, will cover 17 counties in the southern part of Florida.

Wrenn Brothers, 220 South College St., Charlotte 2, North Carolina, will cover all of South Carolina, the southern part of North Carolina, and most of Georgia. The company is headed by J. Preston, Paul E. and George L. Wrenn.

King and Kringel Machinery Corp., 2390 S. Delaware, Denver 10, Colorado, is headed by K. T. King, president, J. R. Kringel, secretary-treasurer, and James G. Doyle, vice-president. Territory allocated to the firm includes all of Colorado, most of Wyoming, and the western part of Nebraska.

Habit Forming, Eh?



Right you are! Get used to a product, and you keep on buying it. Especially if it's top-flight. Like Rapistan casters.

Once you've tried Rapistan casters, you'll be satisfied with no others. They don't bind or squeak. They don't get wobbly. They're quiet . . . fast swiveling, responsive to the lightest touch! And *extra* strong.

Rapistan Steel-Forged casters are Flame-Hardened, by an exclusive process, for unsurpassed strength and long life.

And Rapistan's new, exclusive *Cold*-Forged casters are a minor miracle! They'll outwear any ordinary quality caster—and they cost much less.

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MATERIAL *flow* EQUIPMENT

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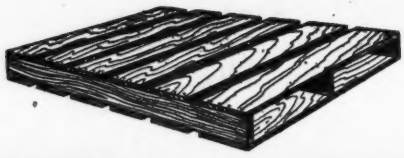
ON THE  PALLET

NEWS • VIEWS • TRENDS

THE next National Material Handling Exposition has now been definitely scheduled for April 30 through May 4, 1951. The show will be held at the Chicago International Amphitheatre.

THE program of the Second Annual Purdue Material Handling Conference, February 20 and 21, is reproduced here for the information of readers. Additional information on the meeting, which will be held at Purdue University, can be obtained from Merle M. McClure, Technical Extension Division, Purdue University, West Lafayette, Indiana.

Monday Morning

9:00 a.m. REGISTRATION. Fee, $20.00 includes ticket for Banquet Meeting and copy of proceedings.

10:00 a.m. General Chairman H. T. Amrine, Associate Professor of Industrial Engineering, Purdue University.
CONFERENCE WELCOME. A. A. Potter, Dean of Schools of Engineering, Purdue Unversity.
MATERIALS HANDLING—A PROFESSION. W. W. Phillips, Manager, Raw Materials Handling, Eli Lilly and Co., Indianapolis, Indiana.
PROFITS IN SHORT RUN PRODUCTION BY MATERIALS HANDLING. M. L. Triplette, Carrier Corp., Syracuse, New York.

Monday Afternoon

2:00 p.m. Chairman R. Kennedy Hanson, Secretary-Treasurer, Materials Handling Institute, Inc., Pittsburgh, Pennsylvania.
STATISTICAL APPROACH TO MATERIALS HANDLING. Irving W. Burr, Professor of Mathematics, Purdue University.
PROBLEMS SOLVED BY STATISTICAL METHODS. Guy Parkin, Director of Statistical Quality Control, Minnesota Mining and Manufacturing Corp., Minneapolis, Minnesota.

Monday Evening Banquet

6:30 p.m. Presiding, O. S. Hulley, Associate Professor of Industrial Engineering, Purdue University.
CHINA—THE THIRD WORLD. Mrs. Mildred Fitch, Professor of Government and Economics, Purdue University.

Tuesday Morning

9:00 a.m. Chairman D. C. Rhodes, Pitman-Moore Co., Indianapolis, Indiana.
MATERIALS HANDLING COSTS—HOW ARE THEY DETERMINED. Robert W. Field, Professor of Industrial Engineering, Purdue University.
EFFICIENCIES EFFECTED BY MATERIALS HANDLING. Lee Russell, Brown Forman Distilleries, Louisville, Kentucky.
W. J. Greer, Eli Lilly and Co., Indianapolis, Indiana.
E. T. Riter, Soya Products Division, Glidden Corp., Chicago, Illinois.

Tuesday Afternoon

1:30 p.m. Moderator H. F. Owen, Associate Professor of Industrial Engineering, Purdue University.
PANEL DISCUSSION. All program speakers are to be members of this panel.
SUMMARIZATION. W. B. McClelland, Educational Director, Clark Equipment Co., Battle Creek, Michigan.

THE Mercury Mfg. Co. announced the resignation of L. J. Kline, executive vice president, effective December 31. The duties and responsibilities of that office have been assumed by C. W. Henkle, vice president and general manager. There is no change in the officer personnel. O. T. Henkle, Sr. remains president and treasurer, O. T. Henkle, Jr. is secretary and sales manager, and C. W. Henkle, vice president and general manager. P. K. McCullough is the advertising manager and assistant sales manager.

Have you ordered your copy of the 1949-50 FLOW DIRECTORY? $5.00 per copy. It's revised and enlarged. An indispensible reference volume for engineers, purchasing agents, production executives.

MEN IN THE NEWS

S. W. Rolph

S. W. ROLPH, executive vice president, The Electric Storage Battery Co., has been elected president. He succeeds R. C. Norberg who has been elected chairman, board of directors.

E. E. Ames

THE GENERAL BOX CO. has announced three changes in its board of directors. E. E. Ames of Crawfordsville, Indiana, has been elected chairman of the board. Ames is a veteran of General Box, having aided in the foundation of the company in 1922 and then, prior to his retirement in 1947, served as vice president and director of sales.

Two new directors were also added: W. C. Embry, vice president in charge of the Louisville plant, has been elected director to fill the position occupied by his father, the late Harry W. Embry. J. F. Ferguson, vice president and sales manager, has been advanced to director. Both Embry and Ferguson will retain their old duties in addition to their new responsibilities.

Ernest A. Berglund

THE ELECTION OF ERNEST A. BERGLUND as vice president of Hydraulic Equipment Co., has been announced by Hall Kirkham, president. Berglund has been active in the industrial hydraulics field for many years, and before joining HYDRECO was manager of the Hydraulics Division, Commercial Shearing & Stamping Co. He will devote his attention to marketing and sales development.

1949-1950
FLOW DIRECTORY

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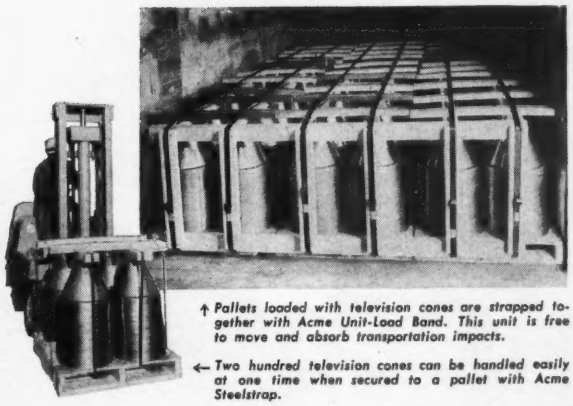
ACME STEEL CO. CHICAGO

Still another shipper cuts handling costs, damage claims with ACME STEELSTRAP



↑ *Pallets loaded with television cones are strapped together with Acme Unit-Load Band. This unit is free to move and absorb transportation impacts.*

← *Two hundred television cones can be handled easily at one time when secured to a pallet with Acme Steelstrap.*

T-V part-maker also cuts unloading time 92%!

The Milwaukee Metal Spinning Company, pioneer manufacturer of metal television cones, finds Acme Steelstrap and Unit-Load band the perfect shipping method for its easily damaged product.

The metal cones, strapped to pallets, are loaded into half of a railroad car. A gate is placed at each end of the grouped pallets, which become a "floating" unit when bound together with Acme Unit-Load bands. The other half of the car is loaded in the same way.

This dependable bracing method assures perfect delivery, and, under normal conditions, a car can be unloaded in 1½ man-hours. The old way of using wood braces required 18 man-hours for unloading.

More than 40,000 other users prove 9 out of 10 companies can ship safer . . . and at *less* cost . . . with Acme Steelstrap and Unit-Load band. Find out how you can save, too. Mail the coupon today.

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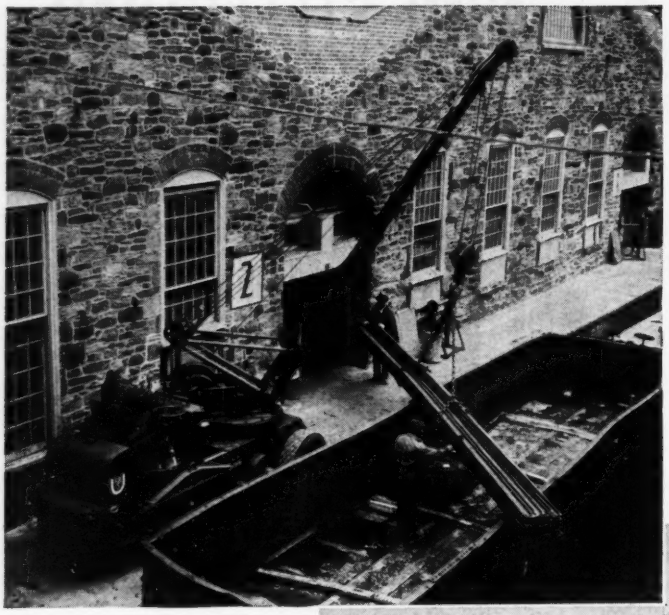
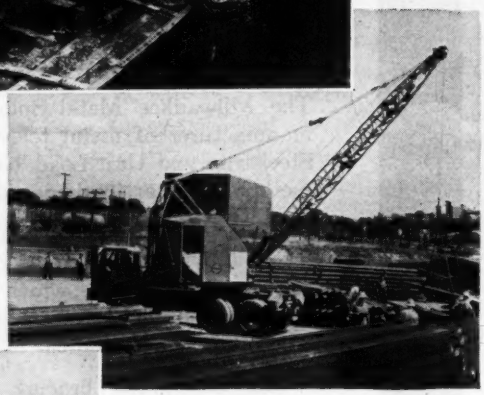
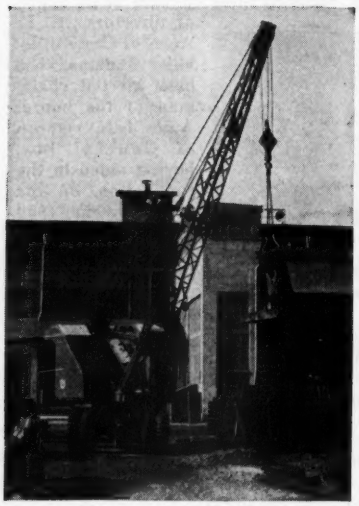
Shovel-Cranes



Cargocrane unloads strip steel at factory warehouse. Low slung and with telescopic boom, it can carry its load right into the building.



Zephyrcrane makes light work of unloading and piling poles.



UC-55 expedites handling of heavy steel castings.
HC-70 Truck-Crane in wide area storage yard. With speeds up to 30 m.p.h. the Truck-Crane cuts travel time to minimum.

Loose or bulk material, steel and lumber, product parts in course of assembly—you handle any or all of them effectively with Link-Belt Speeders.

Lifting attachments are quickly interchangeable to provide hook-block, grapple or clamshell bucket for any specific type of material.

Link-Belt Speeder wheel-mounted cranes range from the YC-9 with a lifting capacity up to 10 tons, to the HC-90 truck-crane with capacity of 25 tons, and boom lengths of 100 feet plus jib.

11,403

This book illustrates and describes many different applications of Link-Belt Speeders to material handling. You'll find helpful information and suggestions here—Send for a copy—NOW!

LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA

Builders of the Most Complete Line of SHOVELS-CRANES-DRAGLINES

OPERATOR AS CONVEYOR (small view), the former method. Modern idea stresses production, not burden-bearing. Below: THIS CHAIN CONVEYOR carries flatware saggers, freeing operators for less fatiguing jobs.

The data for this article were furnished by

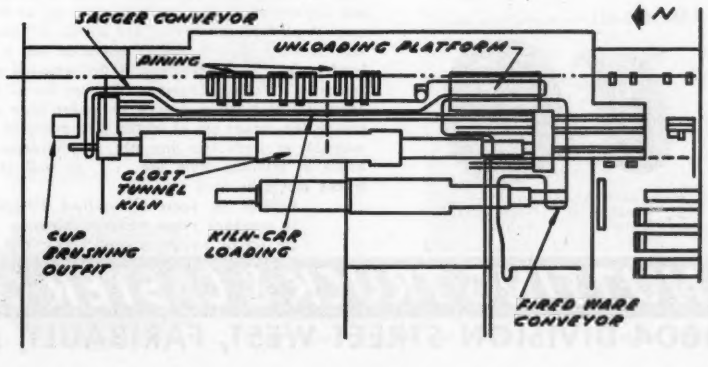
FOSTER RHODES
Manager of Production
Onondaga Pottery Co., Syracuse, N. Y.

Greater Production—Minimized Fatigue

Compare the human "conveyor" of less than 10 years (top photo) with the present-day conveyor operation. The emphasis on skill over brawn in industry has netted this company a 35 per cent production increase.

THE pottery industry, like others in recent years, has made considerable strides in the realization of greater production potentials, at the same time making the worker's job easier and giving him increased scope for the application of skill. In this development, material handling equipment has necessarily gone hand in hand with the introduction of high-capacity production equipment.

The change from periodic or beehive kilns in this plant to the continuous type of kiln is a good example of this trend. The realization of the economies inherent in the production potential of the advanced type of kiln depended largely on a mechanical "burden bearer" that would perform the conveying jobs incident to brushing, pinning, loading and drawing of the ware on a continuous basis, tirelessly and with economical use of manufacturing space. That is

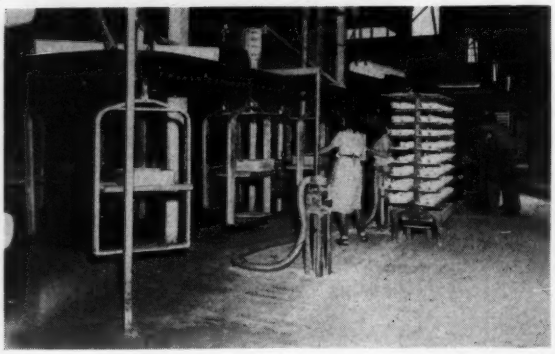


NOTE HOW SAGGER conveyor is tied in with "fired ware" conveyor, at extreme right of the layout. All work stations are shown.

essentially the significance of our sagger conveyor which serves the glost-kiln operation.

side the periodic kilns. A sagger, by the way, is a container of ceramic material in which the ware

from the bottoms of the cups before they can be placed in the saggers. This is done with power



UPPER TRAYS of sagger line carry cups from brushing station. Workers' aim is production.

CONVEYOR DELIVERS full saggers for unloading on kiln cars, keeps receiving work same time.

A 35% Increase

This production increase, attributable to the modern installation, includes firing along with loading and drawing. The interference with production in the "old" days can be appreciated when it is recalled that the potters climbed with the loaded saggers on their heads as high as 25 feet in-

is "pinned up" for firing.

It must be understood that two kinds of chinaware go into the glost-kiln (a glazing-kiln)—cups and plates. This explains the dual-tray conveyors shown in the photos. The saggers with the cups, or holloware, are placed on the top tray, the flatware saggers on the bottom tray.

Excess glaze must be removed

brushes at the north end of the layout. A loop of the closed circuit of the 300 ft. sagger conveyor extends past this station. This and other references to the layout are identified in the accompanying flow diagram.

The operators place the brushed cups into the saggers as they travel slowly past their stations (at five FPM). The travel cycle of these

FIG. 16-24
Two-Wheel Trucks for Every Use
FIG. 419-421 Jack and Live Skid
Casters, All Types, Light, Medium, Heavy Duty
Wheels with Demountable Rubber Tires

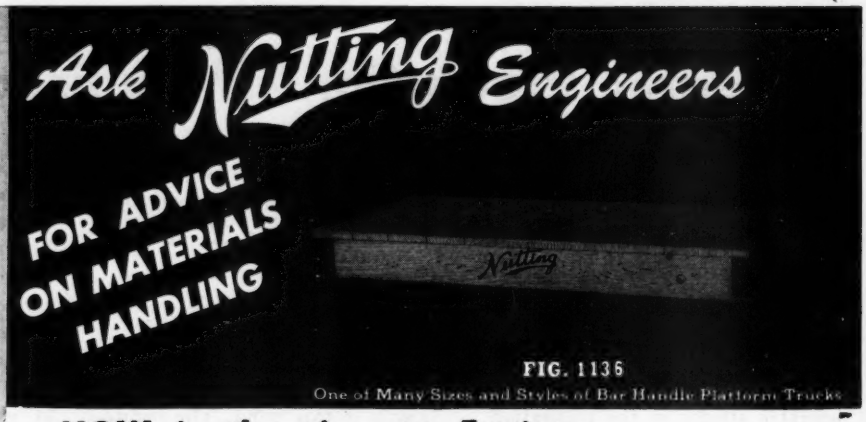

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FIG. 1136
One of Many Sizes and Styles of Bar Handle Platform Trucks

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containers will be described presently. The larger flatware saggers are supplied to the pinners at the west side of the layout on steel-bound wooden skids.

The stations for pinning, shown near the central portion of the outbound conveyor strand, roughly resemble a "U". One longitudinal and one lateral section consist of gravity rollers, while the remaining longitudinal section is a 10 ft. powered V-belt conveyor. This is the take-away of the set-up bench.

The empty saggers are lined up on the longitudinal gravity roller section, as shown. All rollers are covered with rubber. The containers are loaded on the short lateral section, where the ware is supplied on a portable shelf-type stand. (Ceramic pins, inserted in the slotted walls of the container, separate the individual pieces of flatware for firing). The full sagger is shunted onto the powered belt section of the set-up bench, from whose end point it is loaded on the bottom tray of the chain conveyor. The 10 ft. section of the "U" arrangement is powered for a smooth take-away. The vibration resulting from manual propulsion on a gravity line would disturb the arrangement of pieces supported on short pins, whereas the slow, even speed of the take-away section is practically without vibration.

The sagger conveyor carriers have a 3" pressed metal frame, and are spaced on five ft. centers. The 14" x 24" shelves are spaced approximately 18" apart. The travel rate of five FPM is designed for safe loading and unloading at the several work stations.

It's No Longer "Stop and Go"

Thus the two types of vitreous ware are transported in a continual stream to the kiln car loading station, where the containers are removed from the conveyor trays. A floor-mounted electric winch hauls the loaded cars to the kiln entrance and positions them for charging via a transfer car.

After cooling, the cars with fired ware are spotted on another section of the same track (marked

*Enterprise Wheel & Car Corporation, Bristol, Virginia

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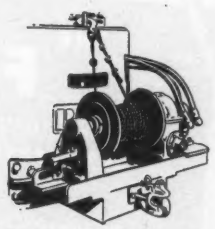

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SERIES "31" RIGID CASTERS match in rugged construction and overall heights the Series "21" Swivel Casters.

WHEELS—SEMI-STEEL with plain or roller bearings
SOLID RUBBER with oilless bearings
VULCANIZED RUBBER TIRED with roller bearings
PLASTIC with plain or roller bearings.

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FIG. 9215-S

One of the hundreds of Fairbanks hand and platform trucks.

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"drawing" on the flow diagram). The finished ware (made for commercial and household uses) is now loaded on the triple shelves of another overhead chain conveyor which circles past the drawing or unloading station. A section of it, included in the flow sheet, parallels the sagger conveyor for about 35 ft. The drawing conveyor, a circuit of about 1000 lineal feet, circles past several kilns and transports their total production to a centralized inspection station in another part of the plant.

As the fired cups are dispatched on the drawing conveyor, the empty cup saggers are transferred to the top shelves of the sagger line for return to the brushing station at the north end of the layout. The empty flatware saggers are here stacked on steel-bound wooden skids for delivery to the pinning stations.

It has been shown that the sagger conveyor performs several important tasks in connection with the glost-kiln operation. In serving the brushing and pinning stations, it takes the work away as soon as completed (conserving floor space) and makes it constantly available on the other side of the layout during the kiln car loading periods. Tied in with the drawing conveyor, the sagger line also facilitates the distribution of empty containers to the start of the cycle.

The continuous, progressive conveyor flow is thus an integral part of the continuous kiln operation. This is a far cry to the "stop and go" method of the earlier days. "Stop" refers to the interruption of production when the potters would heave the full saggers on their heads and start the long, laborious climb to the top of the stack in the beehive kilns. The 35 per cent production increase reported here is based on a rather conservative estimate.

1949-50 FLOW DIRECTORY

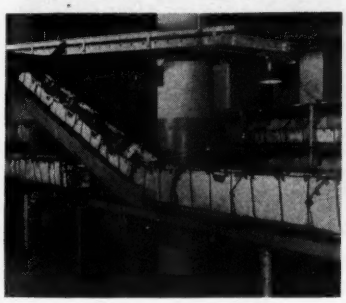
Copies of the new and revised Directory are available at $5 each. An invaluable manual for the material handling engineer, production executive, and purchasing agent.

IDEAS YOU CAN USE . . .

(Continued from page 39)

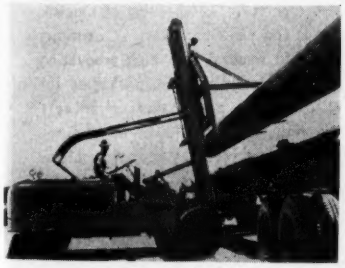
will be available soon. The new tape has an acetate film backing and glass filaments, which run lengthwise with the tape. The filaments are permanently imbedded in a resilient, shock-proof rubber adhesive which reinforces the tape-like steel rods in concrete. The material is designed for extra heavy-duty packaging, including such jobs as banding hundreds of pounds of steel pipes, tubes and coils for domestic and foreign shipment. The tape is hand-wrapped around a load and back on itself and sticks immediately upon contact. Other applications are said to include banding raw lumber, wall board, window frames, cartons, plate glass, stoves, refrigerators, and machinery parts. The tape will be made in 72-yd. lengths and in standard widths of ½, ¾ and 1 inch. — *Courtesy, Minnesota Mining and Mfg. Co.*

CANVAS BASKETS SPEED MAIL ORDER HANDLING—In Brookline, Mass., Sears, Roebuck & Co. has recently introduced a new and effective method of handling packages on conveyor and roller belts. For a quicker, larger volume per belt, Sears now uses canvas baskets which may be shelved for con-

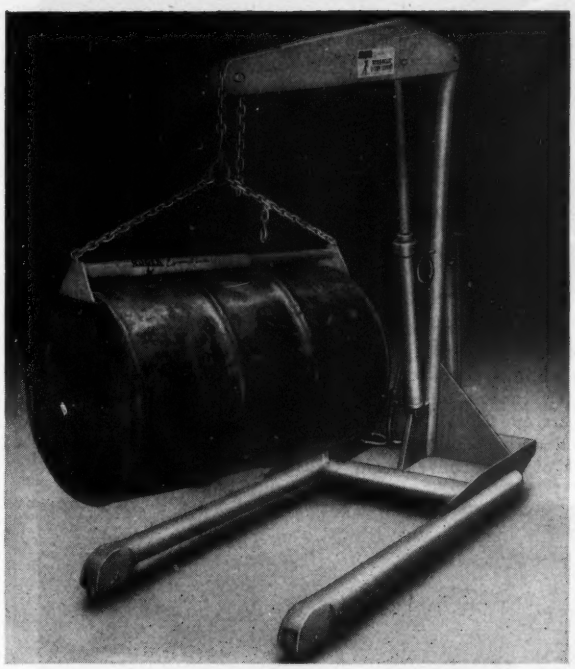


venient loading or shipment, or movement from place to place in the shipping rooms. Stacks of nested baskets save space. Loaded baskets also increase handling efficiency by providing ready accessibility for sectional shipment.— *Courtesy, C. R. Daniels, Inc.*

HERE'S HOW the job was accomplished of loading four-ton, 60-ft. sections of steel pipe on trailers and truck bolsters. The pipe is manufactured in



30-ft. lengths in south San Francisco and trucked to Santa Clara where sets



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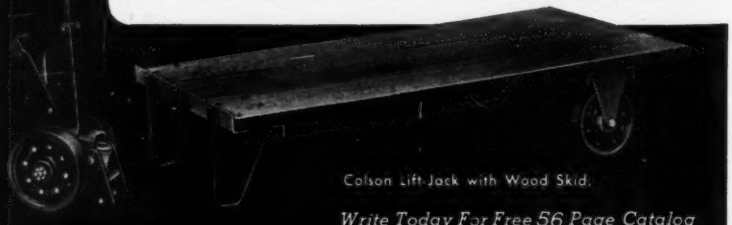
Other cost-cutting Colson equipment includes drum and barrel trucks, platform trucks, hand trucks and famous Colson load-floating wheels and casters.



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Side view of cab showing air-conditioning unit mounted above on catwalk.

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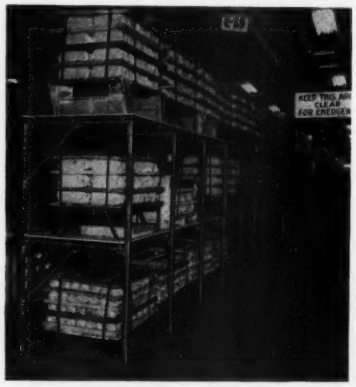
of two are welded together. Some 30,000 tons of this pipe are being used in a 506-mile section of a 1600-mile project which will deliver natural gas from fields in Texas and New Mexico to northern California, the world's largest natural gas line. A lift truck with a specially engineered hydraulic grab arm was developed to load the off-size, hard-to-handle sections. When the pipe is lying on the ground the forks dig in under and the arm comes down to lock the pipe for lifting. There is positive hydraulic pressure on both the forks and the upper grab arm. The grab was designed to hold the circular shapes during travel. Concave retainers on the forks provide a cradle for the pipe and prevent shifting. — *Courtesy, Gerlinger Carrier Co.*

ADJUSTABLE SKID AND PALLET RACKS—Emerson-Electric simplified material handling problems by installing an extensive run of completely adjustable skid and pallet racks made wholly of metal framing. The



racks provided greatly increased storage space and freed the aisles for rapid movement of lift trucks and other essential traffic while improving the overall efficiency of its material handling operations.—*Courtesy, Unistrut Products Co.*

NEW ARTICLES PLANNED

A report on the latest department store warehouse, described by the company's board chairman as a dollar- and customer-saving operation . . . also two reports on warehousing of electric lamps and paint products . . . continuous chip removal in a high-production line . . . useful ideas on packaging for exporters . . . a case study of an outstanding load unit project in an automotive plant faced by special problems . . . photo reports on carloading, order assembly and concrete pipe handling . . . and other articles planned to give you ideas for better production and cost-reduction.

ELEVATING UNIT . . .

(Continued from page 25)

2. Damage to loads when descending the ramp, especially in bad weather. 3. Accidents resulting from the fact that loads sometimes "got away" from operators (normally a man would precede it down the ramp). 4. Reluctance of operators to perform these tasks requiring undue exertion.

Electric Lift Serves Three Levels

This problem was overcome when the company installed an electric elevating unit which serves (a) the level of the main building, (b) the adjacent structure and (c) a receiving platform for rail cars. The total height between the highest and lowest levels is approximately four ft.—the rail car platform is about 2½ ft. from the upper level. The electric lift has a 4000-lb. capacity. Its 5'x6' platform accommodates two skid loads, together with the hydraulic hand lift trucks.

The elevating unit has gates on four sides. Two are designed for entry and exit during movement between the main building and the recently added storage building, the other two serve the receiving platform which extends at right angles from both sides of the lift. Unless all gates are closed, the unit will not operate; once in motion, the gates cannot be opened. For additional safety, telescopic guard rails prevent operators from accidentally walking into the lowered lift.

Here are two typical transportation operations involving the elevating unit.

Cartoned toy trains are stacked on skids in the packing room and hand-trucked to the upper level outside the main building, then into the lift. The latter brings the load to the level of a steel ramp which bridges the rail spur and serves the new storage structure. (The ramp is hinged and drawn up to allow rail cars to pass.) The operator trucks the load just inside the building and usually picks up a return load destined for the shipping department.

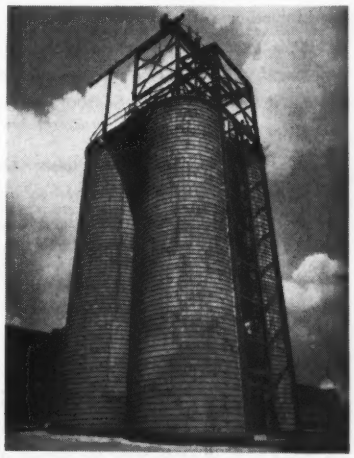
If the stock coming from the main plant is to be stored for some time, it is first palletized on the skid in the packing department. In the shed, a hand-guided electric stacking-type truck picks off the pallet load for stacking, while the skid is used for delivery of outgoing stock to shipping.

For unloading rail cars, the lift stops on the intermediate level. The incoming goods are placed on skids and hand-trucked to the elevating unit, then delivered into the plant on Level 3 (see photo).

The lift is in use constantly throughout the day. While ever-increasing production may yet demand the construction of a new building devoted exclusively to storage and shipping at some future time, the present equipment has successfully answered the problem of how to reduce three working levels to one roadway.

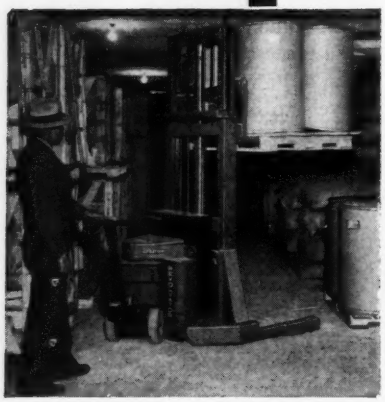
STACKING-TYPE ELECTRIC TRUCK picks off palletized load from skid in the storage building.

SILOS HELP SOLVE DUST AND HANDLING PROBLEM—Four huge silos loaded by a giant "vacuum cleaner" will shortly eliminate most of the dust and hand shoveling formerly associated with handling clays at the Westinghouse Electric Corp.'s Porcelain Plant at Derry, Pa. Previously, handling of these fine, dry powders had created difficult dust conditions because of their low moisture content. Workmen found facial respirators necessary. Unloading, storing, and utilizing these raw materials was a time-consuming operation involving hand shoveling. Four silos



are built, each 68 ft. high and 14 ft. in diameter. Of concrete-slab construction reinforced with iron bands, the four units will hold nearly 32 carloads of raw materials. Materials stored in the silos can be shaken out easily through trap doors into "weigh" cars and carried to mixing vats. A pneumatic system will load the silos from railroad cars. A 30-in. vacuum tank placed on top of the silos will have enough suction to draw the material up through a 6-in. tube and drop it into the silos. Formerly, unloading a carload of such material meant 20 hours or more of shoveling. Now the operators need only guide the suction nozzle through the material. Respirators will no longer be needed.—*Courtesy, Westinghouse Electric Corp.*

HOW TO FREE TWO GOOD MEN For OTHER WORK



When you install a GO-GETTER Electric Liftruck you free at least two of your men for other work. If you pay these men $2500 a year each, your GO-GETTER will pay for itself in six months and the savings it brings you will be 100% velvet thereafter for many years.

GO-GETTERS save money in other ways too. They save *storage space* by enabling you to pile goods clear to ceilings. They save *floor space* because they can be operated in narrow (6 foot) aisles. They save *breakage* of goods damaged by "man-handling" methods. And they save much time all through the plant.

For all round efficiency and economy in your material handling operations, install GO-GETTER trucks. Send for details on all seven models and compare.

Made by the manufacturers of the famous REVOLVATOR PORTABLE ELEVATORS and RED GIANT HAND LIFTRUCKS.

REVOLVATOR CO.

DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT

8739 Tonnele Ave., North Bergen, N. J.

Kindly send full information on GO-GETTER Power Liftrucks . . . Red Giant Hand Liftrucks . . . REVOLVATOR Portable Elevators . . .

NAME.....

POSITION.....

COMPANY.....

ADDRESS.....

INSTITUTE ASSOCIATION CHAPTER ACTIVITIES

NEW officers of The Electric Industrial Truck Association, elected at the annual meeting, have been announced by the executive committee of the Association. They are: M. W. Heinritz, Gould Storage Battery Corp., president, and W. A. Meddick, Elwell-Parker Electric Co., vice-president. Wm. Van C. Brandt, managing director of EITA, was re-elected secretary-treasurer.

M. W. HEINRITZ
Gould Storage Battery Corp.
President, EITA

W. A. MEDDICK
Elwell-Parker Electric Co.
Vice President, EITA

Announcement also was made of various committees. Executive Committee, Heinritz and Meddick, representing their respective companies; Milton G. Peck, sales manager, Industrial Power Truck Sales, Yale & Towne Mfg. Co.; C. J. Moore, manager, Railway and Motive Power Sales Division, Electric Storage Battery Co.; and O. A. Tilton, manager, D. C. Motor Division, General Electric Co. Marketing Committee: Meddick; D. L. Darnell, vice-president in charge of sales, Baker Industrial Truck Division, Baker-Raulang Co., and Gordon J. Berry, vice president, Electric Products Co. Chairmen and vice-chairmen of three sections of EITA also were announced. Truck Section: Milton G. Peck, Yale & Towne Manufacturing Co., chairman, and J. A. Baldinger, assistant to the general manager, Automatic Transportation Co., vice-chairman. Battery Section: C. J. Moore, Electric Storage Battery Co., chairman, and M. W. Heinritz, Gould Storage Battery Corp., vice-chairman. Charger Section: A. O. Tilton, General Electric Co., chairman, and Gordon J. Berry, Electric Products Co., vice-chairman.

MATERIAL handling men in the Grand Rapids, Michigan territory have organized the Material Handling Society of Western Michigan. Officers of the group include H. L. Bowkamp, American Seating Co., president; J. W. Ferguson, Sealed Power Corp., vice president; Thomas Quimby, Doehler-Jarvis Corp., secretary; Carrol E. Slocum, American Box Board Co., treasurer. The executive committee includes R. L. Baker, General Motors Stamping Division, C. W. Crane, Doehler-Jervis Corp., F. G. Nyman, manufacturers representative, Ivan

ELECTROLIFT saves handling costs because it uses little power, requires less labor and does the job quickly. Many users report this worm-drive electric hoist saves them more than enough money to pay for its installation. There's an ElectroLift model to meet your capacity (up to 6 tons), speed and plant layout needs. Write or phone your nearest ElectroLift representative — listed in the classified directory — or:

ELECTROLIFT, INC., 30 Church Street, New York 7, N. Y.

THIS *Simple* TRUCK LOADER

CUTS DELIVERY COSTS 50%

ANTHONY LIFT GATE HYDRAULIC

More "LIFT GATES" in use than all others. Simplicity of design is one reason . . . Ruggedness is another. Extra features*—proved by 6 years of field experience—are more reasons why nearly all truck loaders you see are Anthony "LIFT GATES." Write for literature, prices.

*"LIFT GATE" rests on ground. No protrusions to prevent easy loading.

*Loads from all sides at all levels with "Quick Detachable" Ramp.

*Non-sloping—Gives "*Level-lift*" to avoid loads rolling or toppling off.

*Close "Gate" easily with one hand. No power needed.

*Safety Latch locks up. "LIFT GATE" cannot be lowered accidentally.

*Lower "*Point of Leverage*" gives more power with ¼ less working parts.

ANTHONY CO., Dept. 908 STREATOR, ILL.

IRONBOUND SKIDS

● Still the low cost time proven method for efficient and economical handling of materials.

IRONBOUND SEMI-LIVE SKIDS

● Semi-live skids can be made for use with box tops or trays to provide tiering, space-saving mobility. You can stack, tier or handle special materials with various types of superstructures.

We can show you how a semi-live material-handling system will work in your plant to save you money. Write for illustrated literature.

IRONBOUND FLO TRUK

● A sturdy economical truck available with single or double push handles. These trucks solve many inter-plant handling requirements. Write for literature.

ROL TRUK

THE IRONBOUND UNIT FOR SIMPLIFIED HANDLING OF PAPER ROLLS, DRUMS, BARRELS, REELS, KEGS, ETC.

● The Ironbound RolTruk will "pick-up and go" with cylindrical items weighing up to 2000 pounds. Available in models to meet most every roll handling requirement. Ask for special fully illustrated 6 page bulletin 10-RT.

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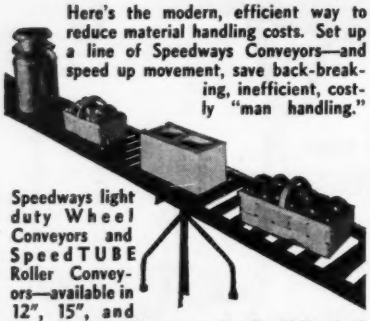
BOX & LUMBER COMPANY
Materials Handling Division
30 HOFFMAN PLACE • HILLSIDE, N. J.

SKIDS • SEMI-LIVE SKIDS • DOLLIES • FLOOR TRUCKS

Handling Costs Getting You Down?

Let SPEEDWAYS Gravity Conveyors Carry Your Load

Here's the modern, efficient way to reduce material handling costs. Set up a line of Speedways Conveyors—and speed up movement, save back-breaking, inefficient, costly "man handling."



Speedways light duty Wheel Conveyors and SpeedTUBE Roller Conveyors—available in 12", 15", and 18" standard widths—can handle 90% of all cases, boxes, packages. 5' and 10' lengths!

Write for literature that gives constructional details, tells about Speedways "Hi-Lo" feature that gives "Double Duty," shows simple hook up (without tools) and easy portability.

KEEP 'EM ROLLING WITH SPEEDWAYS CONVEYORS, INC.

1242 Niagara St., Buffalo 13, N. Y.

Stocked by experienced Materials Handling Engineers in principal cities. Also manufactured in Canada.

Smith, Brunswick-Balke-Collender Co., and Wm. J. Sullivan, Campbell-Wyant & Cannon.

A TOUR of the Allen B. Dumont television receiver plant in East Paterson, N. J. was the feature of the November meeting of the Material Handling Society of New Jersey. Members traveled through the plant on tractor-trailer trains while a member of the company described the operations in each area. In the evening, a question-answer period was conducted by William Burbank, chairman of the Society's program committee. Questions were answered by Ricardo Muniz, manager of the Dumont Television Receiver Mfg. Division and his staff.

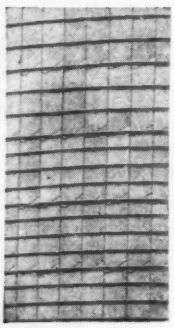
THE December meeting of the Northeastern Ohio Chapter, Material Handling Institute Inc., was highlighted by a talk by Sam Saul, Jr., president of the Rack Engineering Co. Saul suggested that management look past the initial price of a piece of equipment. The important thing, he pointed out, was to understand the savings which it would effect, savings which frequently amortize the initial purchase price within a very short period. A lively question and answer period followed Saul's talk.

MEMBERS and guests at the February 17 meeting of the Material Handling Society of Philadelphia will hear Curtis H. Barker, Jr. speak on the subjects "Automatic Pallet Loader" and "Economic Use of Various Type Pallets". Barker, a former consulting editor of FLOW Magazine, is presently sales manager of the Pallet Loader Division of Lamson Corp.

THE January 24 meeting of the Syracuse Chapter of the American Material Handling Society was addressed by Sears L. Hallet, publisher of Modern Material Handling.

Lasting Vertical Storage

More than half a century of experience has proved that Neff & Fry Concrete Stave Bins last from generation to generation with virtually no maintenance expense. They do not rust, rot, or burn. They withstand tornadoes which demolish buildings and uproot trees in the vicinity. They are not harmed by contraction and expansion.



The photograph at the right shows a small area of a Neff & Fry storage bin wall. Notice the pattern of the Super-Concrete Staves with their diagonally pointed ends. You can see that each stave interlocks with six adjoining ones; also that the steel hoops around the horizontal joints impinge directly upon the points of the staves.

Molded under hydraulic pressure, the staves are dense in texture. They have such high compression strength that superstructures are frequently built on top of N. & F. Bins without extra supports.

Almost all conceivable kinds of bulk flowable materials are handled in N. & F. Bins. The principal ones are grains, seeds, coal, coke, sand, cement, aggregates, ashes, minerals, ores.

If you do not have a stenographer or recorder at hand, make a memo, or clip this advertisement as a reminder to request complete information on N. & F. Storage Bins. Don't commit yourself to vertical storage structures before getting the facts from us.

THE NEFF & FRY COMPANY

151 East Central Avenue

CAMDEN, OHIO

NEFF & FRY STORAGE BINS

MEET COL. WILCO!!

ARISTOCRAT FROM THE SOUTH

Colonel Wilco

WILCO PALLETS, like the Colonel, are "Real Quality." They will give you years of trouble-free service because they are engineered especially for your particular need.

LET COL. WILCO help you lick your material handling problems.

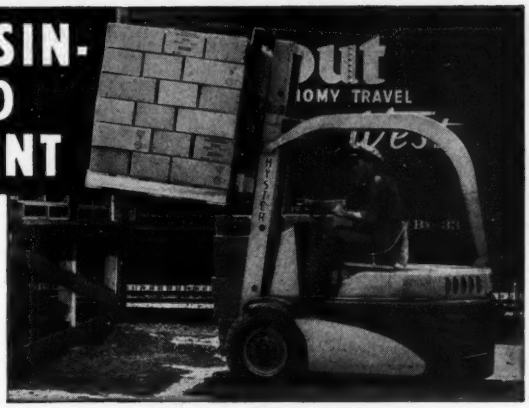
WILLIFORD MFG. CO.

Box 6095-F, Buntyn Station

MEMPHIS 11, TENNESSEE

WISCONSIN-POWERED EQUIPMENT

Keeps Things Moving!



This Model "40" Hyster Lift Truck, powered by a Model VF-4 Wisconsin V-type 4-cylinder air-cooled engine, is stacking boxed goods on RR. loading platform . . . working on soft gravel ground.

The Hyster Company, with factories in Portland, Ore., Peoria and Danville, Ill., is one of a number of leading manufacturers of material handling equipment who can provide outstanding examples of improved efficiency and lowered costs on a great variety of applications . . . through the use of Wisconsin Heavy-Duty Air-Cooled Engines.

Because of their compact design, freedom from cooling problems and heavy-duty serviceability, Wisconsin Engines have much to recommend them for material handling service. Like many others, you may find it possible to reduce both equipment and handling costs and increase the productive capacity of workers through effective applications of Wisconsin Engine Power. Single cylinder, two cylinder and four cylinder types, in a complete power range from 3 to 30 hp.

Specify "Wisconsin Power" for your material handling equipment.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 14, WISCONSIN

One man and a C-F Lifter . . .

One man and a C-F Lifter handle the sheet steel stock in and out of storage in this plant with ease, speed and economy. C-F Lifters can pick up, carry and unload more loads per hour using less man and crane time than any other method. Note how closely a C-F Lifter piles sheets—this results in great savings in storage space. Jaw adjustments for carrying different widths of sheets are made in a few seconds by the operator—an important feature when varying sizes of stock are used.

C-F Lifters are made in sizes to handle from 2 to 60 tons in standard and semi-special designs.

Write for the bulletin "C-F Lifters." It illustrates the many cost saving advantages of these lifters.

CULLEN-FRIESTEDT CO.
1320 S. Kilbourn Ave., Chicago 23, Ill.

One Man Air Hoist

If you're thinking about a portable hoist as a burden-lifter in your plant . . . consider the Keller . . . it offers so many exclusive advantages.

This one-man hoist is a "joy to work with" says the Aluminum Company of America. In fact, it is acclaimed by management and men in factories, shipping departments, tool rooms, foundries . . . wherever it is used on lifting and lowering jobs.

Here are some of the reasons for its popularity:

It is so light in weight compared to other hoists of similar capacities . . . that one man can carry it, set it up and use it . . . without strain or injury. Just attach to air line and it goes to work.

Then, it has a fast lifting speed. 17 Feet per minute at full load for the 500, 1000, and 2000-lb models. For 300-lb model, 75 feet per minute. Speed can be varied at will by the operator from creep to full capacity for either lifting or lowering.

Naturally, when you install a hoist you expect to increase productive effort and slice operating cost. The Keller accomplishes both objectives . . . conserves worker's energy, mechanically speeds his efforts; saves lifting and lowering time. Provides maximum power with minimum air consumption. Hoist is so durably built as to set all time low cost records for maintenance.

You will find numerous reasons for considering the Keller One-Man Hoist in an illustrated folder which we invite you to send for . . . now.

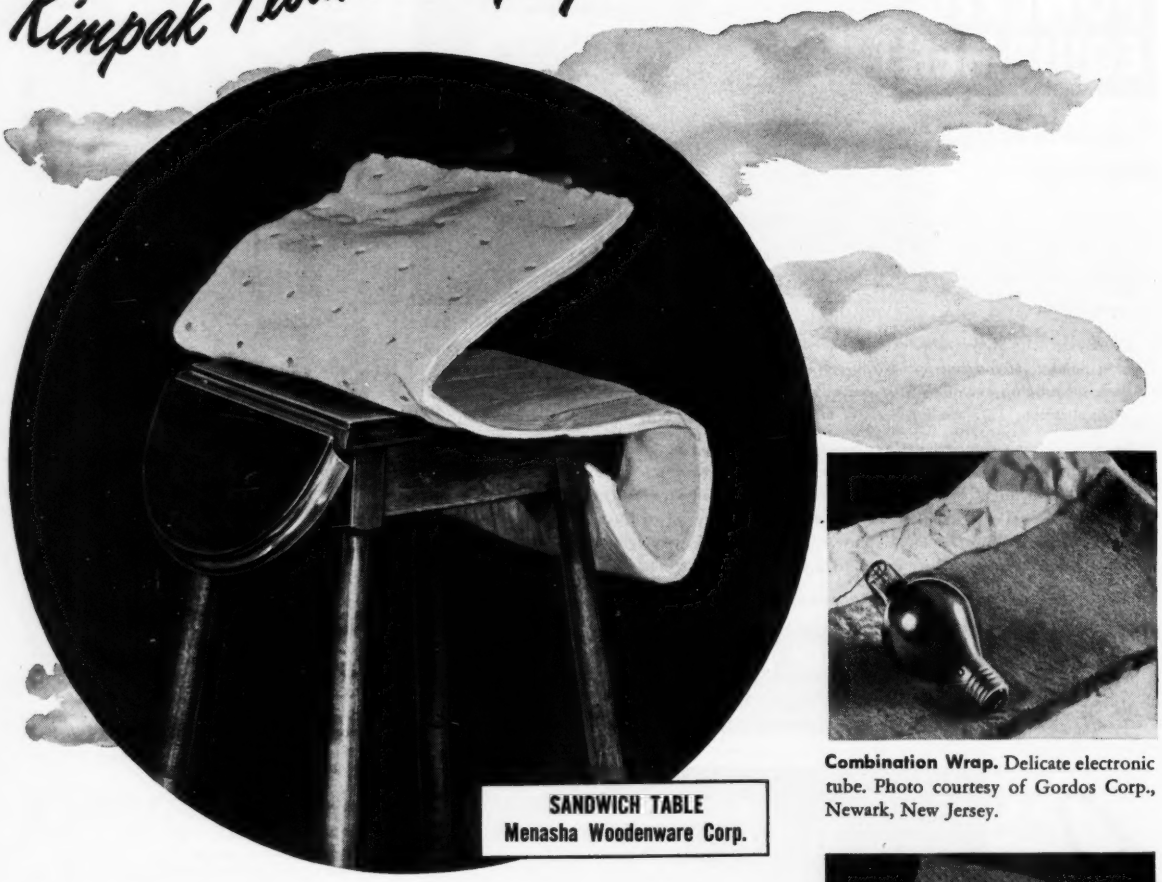
Keller Air Hoists are serviced and sold through our branch offices throughout the United States or direct from the factory.

KELLER

Pneumatic Tools

KELLER TOOL CO., GRAND HAVEN, MICH.

Kimpak* Float Packaging



SANDWICH TABLE
Menasha Woodenware Corp.

Combination Wrap. Delicate electronic tube. Photo courtesy of Gordos Corp., Newark, New Jersey.

Absorbent Packaging. Highly perishable Orchids. Photo courtesy of Beall Greenhouse Company, Vashon, Washington.

Cuts shipping costs — reduces damage in transit!

Regardless of your present packaging methods—it will pay you to investigate KIMPAK* Float Packaging. For *every* manufacturer switching to KIMPAK does so to save on shipping costs, reduce damage to his product in transit!

KIMPAK creped wadding is light, clean, pleasant to handle. Unlike bulk packaging materials, it's as easy to apply as wrapping paper. Yet no other cushioning material provides comparable safety with so little bulk or weight.

You'll find, too, that smart-looking KIMPAK "dresses up" your product, and does away with the usual litter in unwrapping. In a variety of specifications, this most modern of all packaging materials is used for protecting everything from glassware, furniture and appliances to chemicals, food and flowers. In fact, there is a specification of KIMPAK to meet every requirement of the Four Basic Methods of Interior Packaging—Bracing and Blocking, Flotation Packaging, Surface Protection, Absorbent Packaging.

For information, refer to your classified telephone directory under "Packing Materials" or "Packing Materials—Shipping;" or write directly to Kimberly-Clark Corporation, Neenah, Wisconsin.

FREE BOOKLET!

KIMBERLY-CLARK CORPORATION
Neenah, Wisconsin F-250

Please send me free, the illustrated KIMPAK Booklet, "Float Packaging."

Name _____

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Kimpak

A PRODUCT OF Kimberly Clark RESEARCH

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES

CREPED WADDING

*T. M. REG. U. S. PAT. OFF.

PACKAGING MECHANICS SECTION

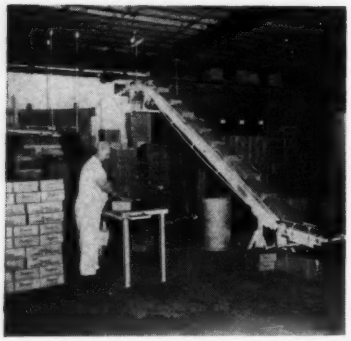
A regular monthly section in which are presented solutions to the problems of efficient filling and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

CONTENTS

AIR SPACE GIVES GREATER UNIT PRODUCTION —under the ceiling of your packaging department may be the space you need to accommodate today's greater tonnage. Here is how the Borden Co. did it in one of its cheese-spread packing plants..... 62

A NEW PACKAGE FOR A CURVED WINDSHIELD —the Cadillac Motor Car Division's container design for a vulnerable replacement part. Breakage was reduced considerably and customer good-will maintained..... 64

Air Space Gives Greater Unit Production



CHUTE DELIVERS full cases, left. At right, empty jars travel to start of filling operations.

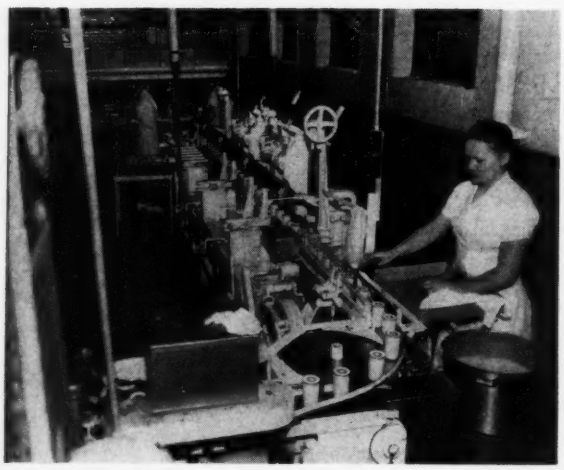
When postwar production made existing floor areas inadequate, this Borden Co. plant relocated storage areas and capitalized on unused air space. Congestion disappeared and filling rate reached an all-time high.

THE need of obtaining maximum production from every square foot of manufacturing space is a perennial one. This example, supplied by a Borden Cheese Co. operation, shows how unit production can be increased without expanding plant facilities.

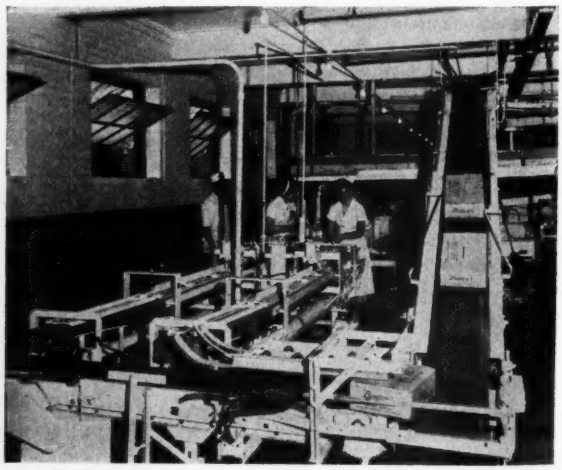
The Borden Cheese Co., Buffalo, N.Y., packages 11 kinds of cheese spreads for sale and distribution within its company and through food stores. Glass jars and bowls from five ozs. to 16 ozs. with screw type and vacuum seal closures are used.

When the demand for these cheese products rose to an all-time high and more automatic machinery was added, the 25′ x 80′ bottling room became too small for all operations. A first step toward a solution was to locate the receiving and storage of the cased empty jars in another room on the same floor. The same room was also used for the storage of filled outgoing cases. While this relocation alleviated the congestion, it posed the problem of transportation between the storage and filling rooms.

DUAL CONVEYORS carry jars through labeling. At rear, the overhead carton conveyor is shown.



CASE SEALERS feed to take-away belt. Note friction marker at bottom, center of view.



Powered and Gravity Conveyors

The distance between the two rooms is approximately 75 ft. A system of belt and gravity wheel conveyors was installed for interroom transportation. This equipment was integrated into the system already in operation and resulted in a continuous flow from the storage room to the start of the filling line and from the case sealers to storage. The conveyor for incoming jars is approximately 100 ft. long, the conveyor to shipping is 75 ft. long.

Air rights were utilized for the installation of the new conveyors because of the limited floor space in the bottling room. The conveyor for empty glass descends to waist height at the start of the filling line (it travels for the most part at a height of 10 ft.). The full case conveyor was connected to the end of the case sealing line, which rises to a height of eight ft. for travel to the next room. In this room, the full cases are delivered to floor level on a metal friction chute. Cases of empty jars (for delivery to filling) are raised to the gravity section by an inclined belt conveyor.

A third overhead line consisted of a 15-ft. section of gravity wheel conveyor extending about two-thirds the width of the bottling room, from the jar filling line to the case packing stations.

At points where overhead sections crossed paths proper clearances for the loaded conveyors were determined. These various sections are contained within U-shaped angle iron supports suspended from ceiling trusses.

Layout for Fast Changeover

The layout of the 2000 sq. ft. filling room, shown on these pages, resembles a "U". Transfer at corners is accomplished by guide rails, rotating discs and direct discharge onto the succeeding conveyor.

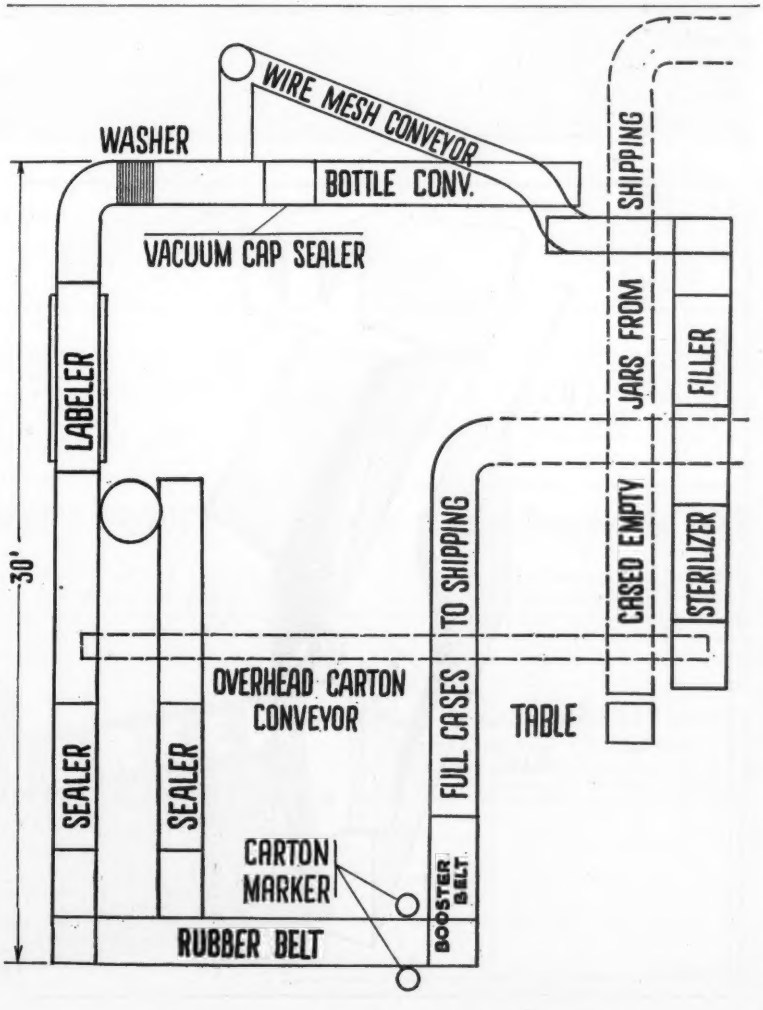
At the start of the line, an operator unloads the glass jars onto a table and places the empty carton on the overhead gravity conveyor leading to the packing stations. A second operator feeds a row of six jars into the sterilizing machine. The units are then propelled beneath a six-spout cam-controlled filling machine where the liquid cheese product flows into the containers.

It was noted previously that screw type and vacuum seal closures are used. Since the same kind of product is often bottled in both types of jars, the layout of the lines was designed for fast change-over from one type of closure to the other.

Operators place screw type caps on the jars as they leave the filling machine. The containers are diverted by guide rails onto a four-in.-wide wire mesh conveyor having 1/16" openings. This line transports the jars between two rubber chucks which complete the closure. The jars are then returned to the main line on a small friction slide. Jars which are to be vacuum sealed are routed via a five-in.-wide bottle conveyor into an automatic capping machine (see layout).

Thus containers with different tops are run on the same equipment. It is only necessary to swing guides across the bottle conveyor to shunt the screw top containers onto the mesh belt. Also, the guide rails on all conveyors are adjust-

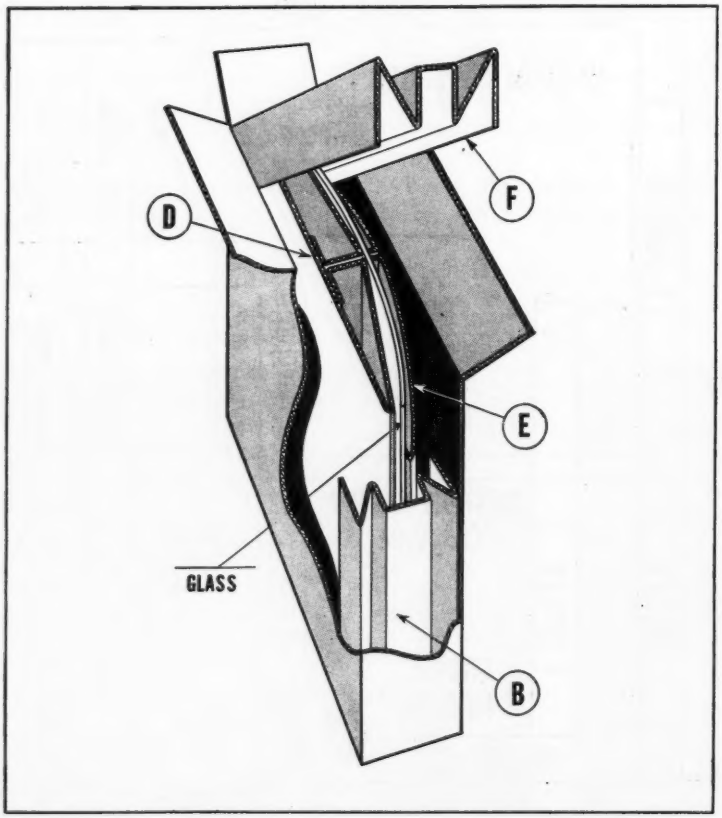
(Continued on page 67)



LAYOUT OF BOTTLING ROOM. Note how three overhead conveyors (broken lines) add handling capacity.

A New Package For a Curved Windshield

The Cadillac Motor Car Division designed a new package for its curved windshield. Benefits realized: 1. 95 per cent reduction in breakage. 2. Reduced claims on railroads and other carriers which used to involve a great deal of time and paperwork. 3. Reduced shipping weight and lower freight charges. 4. Economical relation of carton cost to cost of breakage. 5. Increased good will because of safe arrival of product.



INTERLOCKING FIBREBOARD fillers used for protecting the glass. (B) one of two end fillers; (D) and (E) side fillers; (F) one of two fillers placed at the top and bottom of carton.

THE tremendous production job necessary in making the new postwar automobiles has been apparent to many people not connected with plant operations. Less obvious, however, are the thousand-and-one smaller changes that are necessary for the distribution of newly designed automotive replacement parts to dealers.

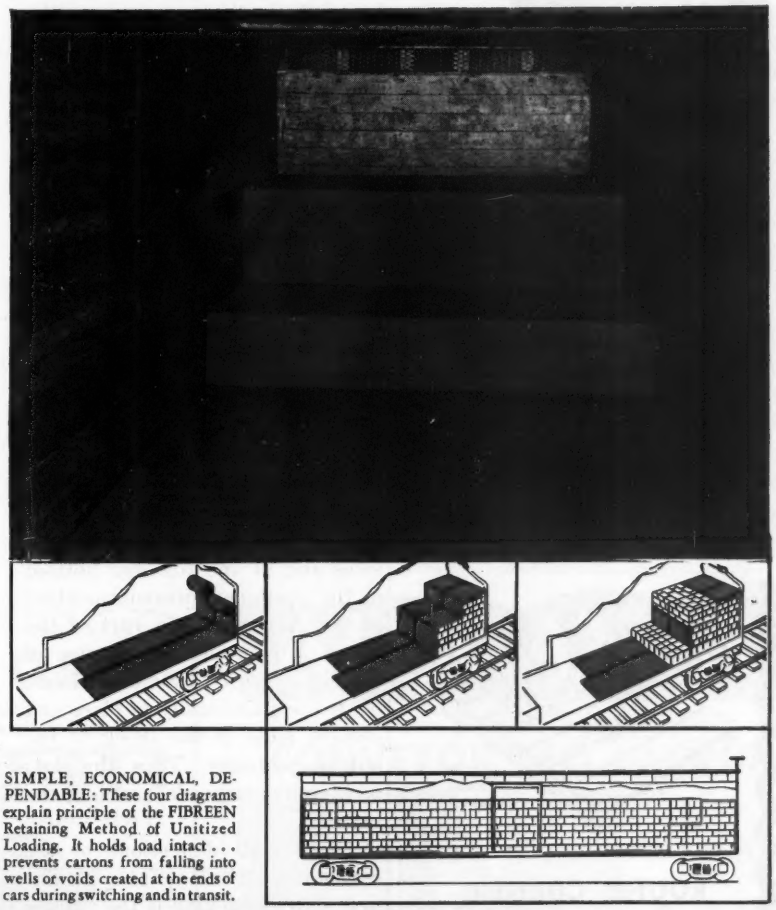
Curved Glass in Fiberboard Cartons

When the Cadillac Motor Car Division, Detroit, introduced curved plate glass in the windshields of its 1948 models, a new problem in packing and shipping resulted. A large volume of windshields is shipped each year to Cadillac dealers and distributors throughout the country. Approximately 50 per cent of this volume is shipped in small lots to areas where the demand for replacements for windshields is relatively low. For these shipments,

CLAIMS REDUCED 75% WITH FIBREEN UNITIZED LOADING

BIG FOOD SHIPPER REPORTS: "GRATIFYING RESULTS"

"On a movement of 108 cars (from Chicago to West Coast, Utah, Texas, Florida, Minnesota, New York and other areas north, east, west, and south), our records reveal that with FIBREEN protection, our damage prior to reconditioning averaged *less than* 3¼ *cases per car* . . . our claims have been reduced 75% since we adopted FIBREEN protection" . . . says the General Traffic Manager of one of America's foremost food canners. In some cars, loads had shifted 3" to 18" at the ends, but even then, the loads were intact . . . there was no tumbling of cartons into end-wells . . . the tough, non-stretching, waterproof FIBREEN proved strong enough to withstand the terrific strain and hold the loads.



SIMPLE, ECONOMICAL, DEPENDABLE: These four diagrams explain principle of the FIBREEN Retaining Method of Unitized Loading. It holds load intact . . . prevents cartons from falling into wells or voids created at the ends of cars during switching and in transit.

HERE'S PROOF! Not a Single Carton Dropped in Well

Photo shows one end of a car in which load had shifted about 10 inches. See how the FIBREEN held the load intact. No break in the retaining paper, no tumbling of cartons into end-well, no damage to cans. Reports from 92 consignees agreed on success of FIBREEN Method of Unitized Loading. Would you like to discuss your specific carloading problems with SISALKRAFT men experienced in this new method? Phone, wire or write: The SISALKRAFT Co., Chicago 6, Ill., New York 17, N. Y., San Francisco 5, Calif.

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SISAL-REINFORCED WATERPROOF PAPER
. . . a product of The SISALKRAFT Co.
Manufacturers of SISALTAPE, FIBREEN, SISALKRAFT, SISALATION, COPPER ARMORED SISALKRAFT
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NEW YORK 17 • SAN FRANCISCO 5

Mail this Coupon TODAY

The SISALKRAFT Co., Dept. F, Chicago 6, Ill.

Please send details on the FIBREEN Method of Unitized Loading, and sample of FIBREEN reinforced waterproof paper. We ship about.....cars per day.

Your Name.....

Firm Name.....

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STENCIL DUPLICATOR
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Fast, economical, accurate way to make copies. PRINTS 1000 OR MORE CLEAR COPIES FROM ONE STENCIL, ONE INKING. Simply type, write, trace or draw on stencil, snap it on, and print on postcards, boxes, cartons, tags, labels . . . much like using a rubber stamp. NO moving parts, of non-corrosive METAL, lasts indefinitely. Replaceable ink pads. Prints up to 19 lines 5¼" long. With supplies in handy, durable case. 5 complete outfit sizes, $9.50 to $99.50. New colorful 1950 packaging. Write for FREE FOLDER.
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TRADE MARK

ROUND CORNER PALLETS PAY OFF!

At small additional cost, your Razorback Pallets can be had with ROUND corners.

This feature reduces damage to palletized merchandise, as well as lengthening the life of the pallet. Write us for full details.

ARKANSAS PALLET CORP.

P.O. Box 794-A Phone 6474
PINE BLUFF, ARKANSAS

fiberboard cartons were prescribed. (Large orders are shipped in wooden cases.)

The curved surface of the 18½" x26½" sheets of glass did not lend itself to normal packaging methods. Unless properly protected from jolts, falls and other rough handling which it normally receives during shipping, the glass is easily broken, especially in the center where the stress is the greatest.

Company packaging engineers as well as carton manufacturers made exhaustive studies and conducted numerous tests. For example, a loaded carton was thrown down several flights of stairs to check the protection offered by the container. Also, test boxes were shipped to all parts of the country by various carriers, and a careful check was made on the damage, if any.

Interlocking Internal Bracing

The carton which is now being used is illustrated in the drawing on these pages. The use of six fiberboard fillers, one at each of four sides and at the top and bottom of the container, prevents contact of the glass with any part of the outer carton wall. The tension of the fillers, caused by various folds, holds the glass rigidly in place and absorbs most of the shock to the outside container. Thus, the glass is literally suspended within the carton.

The overall dimensions of the carton are 31"x21½"x4½". The first step in packing is the placing of filler "A" at the bottom of the container. Its 24" width is compressed to approximately five ins. by folding along six scored lines. Next, fillers "B" and "C" are inserted at each end. These are similar to the one at the bottom but somewhat narrower. With these in place, the first of two side fillers, "D", is added.

A manila envelope containing the glass is placed in the carton and the second side filler, "E", is inserted to hold the glass firmly in position. Finally, the top filler, "F", identical to the bottom one, is laid in place and the carton sealed. While the majority of the cartons contain only one sheet of glass, sometimes two are inserted in the same envelope with paper between them.

Incoming glass, after it is inspected, is immediately placed in the manila envelopes. It was discovered that soot, usually found around railroad yards, had a damaging effect. When the cartons were left standing in the yards for any length of time, soot filtered into the containers and lodged between the glass and the fillers on each side. Any shifting during transit tended to mar the surfaces. The envelopes prevent such airborne soil from reaching the product.

Interlocking Fillers

Another feature of the internal bracing of the carton is the way in which all sections interlock with one another. Center fillers lock in the folds of the side fillers. Likewise, center fillers fit into top and bottom bracing. Thus the folds in the various fiberboards serve the double purpose of creating pressure against the glass and providing a recess for other sections. An experienced packer can assemble, load and seal a carton in less than five minutes.

The results from this container and packing method have been remarkable. While at first glance the carton seems elaborate and expensive, it is evident from the five benefits enumerated in the subtitle that, in actuality, the cost of the carton is low as compared with the results obtained. While in a given case such as this one this carton unit cost may be relatively high, it is the consideration of customer goodwill and need for safe arrival of the glass at its destination, unbroken and undamaged, that dictates or justifies the price of the shipping container.

1949-50 FLOW DIRECTORY
Copies of the new and revised Directory are available at $5 each. An invaluable manual for the material handling engineer, production executive, and purchasing agent.

GREATER UNIT PRODUCTION . .

(Continued from page 63)

able for different sized jars so that a switch from one size, or one type of closure, is accomplished with a minimum of change-over time.

Balancing Automatic and Manual Operations

The auxiliary wire mesh conveyor returns the capped jars to the main line at a point in front of a washing tank. Water is sprayed on the traveling jars, then they are transferred to the east-west conveyor which travels through the labeling machines. At this point, the five-in.-wide bottle conveyor is replaced by two narrower table top conveyors spaced approximately one in. apart. The separation is necessary for the bottom guide of the labeling equipment.

Fingers place the labels on the fronts of the jars after which padded rams press the labels around the sides. The capacity of this equipment is 120 jars per minute.

As the containers leave the labeling machines, a ram pushes every other one onto a one-ft.-diameter turntable, which feeds to a second and parallelling bottle conveyor. These two lines deliver to the packing stations.

Since the cartons are packed manually, the two finished goods conveyors tend to balance the output of the automatic machinery in the preceding operations. Enough operators can be stationed along the two packing lines to take care of the capacity of the filling, capping and labeling equipment.

Reshippable cartons are removed from the overhead gravity conveyor and shunted to the packers. After the full units travel through case sealers, they are discharged to a take-away belt, shown in the exhibits. At both sides of this belt is a carton marker. Friction between this device and the cases affixes the date and code number. Thus the marking is accomplished without interruption as the units travel over the line.

Since the relocation of the storage areas, an addition to the take-away belt is used for transferring the full cartons to the next room, 75 ft. distant. A short section of gravity wheel conveyor is located above the end point of the take-away line. Its purpose is to keep the traveling cases aligned, by applying pressure from above, for smooth transfer to the inclined belt that delivers to storage.

In the storage room, the cases are discharged, after traveling over several transfer sections, via a friction chute to the skid-loading station.

With the methods outlined above, many thousands of jars are filled, labeled and cased per eight-hour day. The utilization of headroom for traveling conveyors, plus relocation of storage areas, has given this Borden Co. plant the greater unit production per square foot which it needed.

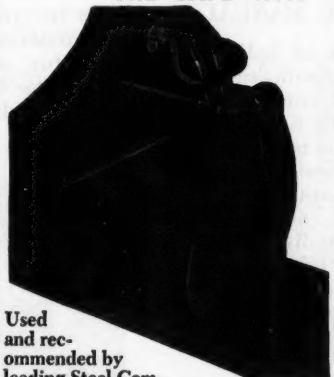
SAFETY EQUIPMENT FOR ALL INDUSTRIES

IPCO M&M RAIL CLAMPS

Used for car stops, on loading platforms, temporary sidings, cars on grades and traveling cranes.

THIS
The Dangerous Way

OR THIS
THE SAFE WAY



Write for Bulletin W-20

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IPCO Safety Equipment for all Industries

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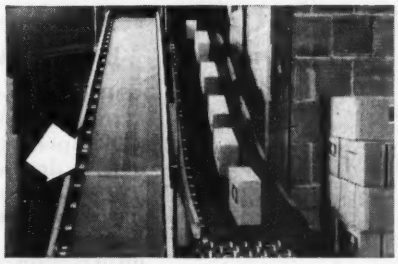


Every Tooth A Vise*

in Long Continuous Lengths for Conveyor Belts . . . . .

★ Excellent for Package Conveyors, Portable Loaders, Trenching and Ditching Machines, etc.
★ In canneries where corrosion or rust is a problem specify Alligator made of Monel.
★ For magnetic separators or anti-sparking specify Alligator made of Everdur.
★ Separable and smooth on both sides.
★ 12 sizes. For belts from 1/16" to 5/8" thick—and *any width.*

Order from Your Supply House. Ask for Bulletin A-60.

FLEXIBLE STEEL LACING CO. 4702 Lexington St., Chicago 44, Ill.

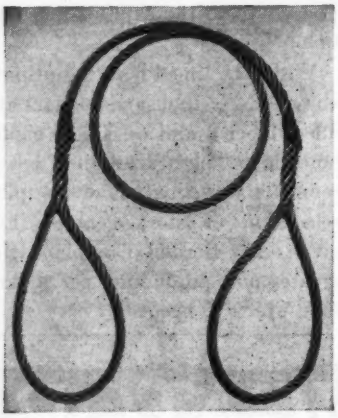
JUST A HAMMER TO APPLY IT

NEW PRODUCTS

For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13, or use postcard bound into this issue.

"BUTTON-WELD" WIRE ROPE SLINGS

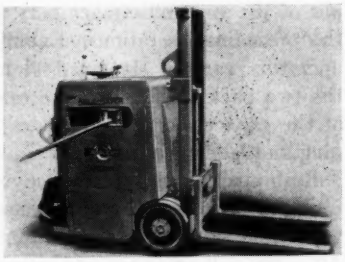
NP1—"Button-Weld" wire rope slings have been developed by the Pennsylvania Wire Rope Corp. The product's main feature is button welds at the splice points, which are designed to eliminate unraveling, thus protecting



operators' hands from splinters and possible damage to the load. The slings may be used for any kind of load, pull and hitch, and are made to order to meet particular load requirements. They are available in all wire rope diameters, of lengths and with types of fittings made to customer's specifications. For further information, use the post card bound into this issue.

AIR-OPERATED FORK TRUCK

NP2—An air-operated fork truck, developed by the Crescent Truck Co., is designed for use in small areas or those where explosion hazards exist, which restrict the use of gasoline or battery powered trucks. The unit operates from any air system at 90 lb. per sq. in. pressure with a consumption of from 200 to 250 cu. ft. per minute. Seventy-five ft. of ¾-in. hose on a retracting reel allow full maneuverability in approximately 18,000 sq. ft. of floor area. The truck is built on the standard Crescent "Aisle-Saver" chassis in 2000-lb. and 3000-lb. capacities with variations in lift, over-all height, fork length, etc., to meet various service requirements. The motor exhaust effects a considerable change of air while the truck is in operation, providing an extra safety factor when the truck is used in inclosed areas. The vehicle is designed



for use in the chemical, paint, oil refinery, explosive and drug industries and for loading holds of ships.

CHEMICALLY COATED COTTON GLOVES

NP3—The Milburn Co., manufacturers of protective clothing, has introduced Plyglovs, a line of chemically coated cotton gloves. It is stated that they are impervious to all acids, alkalis, petroleum solvents and all other liquids except plastic solvents. They are said to meet safety requirements and add greatly to the efficiency and speed of certain handling operations. The gloves are odorless, and will not become tacky. According to the release, they have a great resistence to abrasives and will not stiffen under cold temperatures.

Plyglovs are available in seven different styles to meet most working conditions. For further information, use the card bound into this issue.

STRADDLE-TYPE "WALKIE"

NP4—The Yale & Towne Mfg. Co. has announced a new addition to its Worksaver line of "walkies". This new model,

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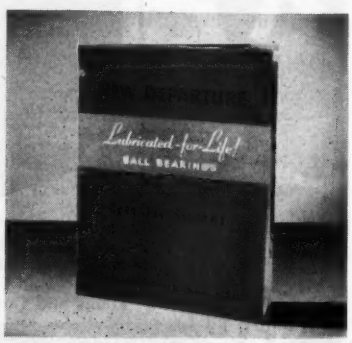
BALL BEARING MANUAL

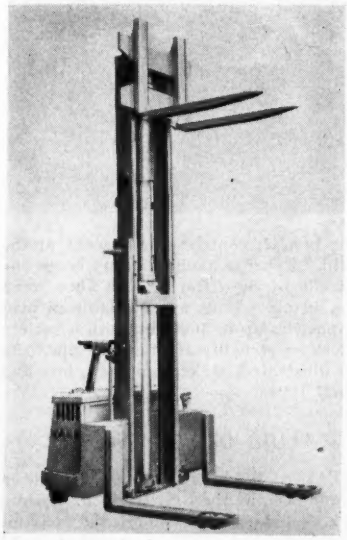
THE importance of ball bearings for the smooth and efficient operation of conveyor systems is dramatically brought out in a 16-page booklet issued by the New Departure Division, General Motors Corp. It contains valuable information, in easy-to-understand language, on five types of self-sealed and "lubricated-for-life" ball bearings designed for belt and trolley conveyors, foundry mold car wheels and similar equipment.

The bearings were developed for use with special stub shafts, round through shafts and hexagon shafts. One of the main points made in the publication is that in thousands of mechanisms, ball bearings, when correctly applied and protected from dirt, will resist all kinds of loads for years without showing any material wear and without need for adjustments of any kind. The booklet is illustrated with line drawings, installation



photos and performance records. It is available free of charge. Write for your copy to Flow, 1240 Ontario St., Cleveland 13, Ohio.

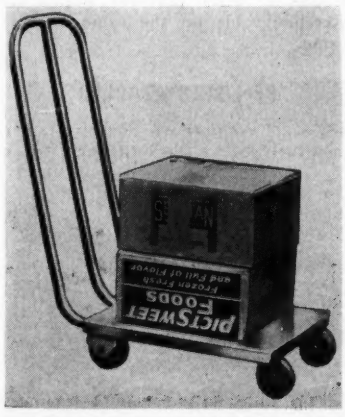
a straddle-type electric fork-truck, has power travel and will lift and tier pallet loads weighing up to 4000 lb. Heavy bar-steel frame members, equipped with tandem load wheels, sustain these loads



without deflection. While originally designed for use with wing-type pallets, the truck can also be equipped with permanent or removable steel plate platform and remote hoist control for use as a power-travel, portable elevator or stacker. It has an articulating frame construction using two swivel wheels forward. A short overall length provides short turning radius for operation in close quarters. The truck is available in 3000 and 4000-lb. capacities in two models. One has an overall height of 83″, fork elevation before telescopic lift, 61½″, telescopic lift, 60″, and total lift 121½″. The second model has an overall height of 68″, a fork elevation before telescopic lift, 46½″, telescopic lift, 45″, and total lift 91½″. Overall length is 82″ with 42″ forks, overall width is 54.″ The vehicles travel at two miles per hour under full load.

UTILITY TRUCK

NP5—A new type of small utility truck has been introduced by Honeyman Mfg.



Co. The unit is a flat-bed four-wheel truck of lightweight construction. It was specially designed for handling small loads of packaged goods and for use in retail stores for distribution of stock to shelves and for assembling orders in warehouses or shipping departments of industrial plants. Of aluminum construction, the unit weighs 18 lb. with a capacity of 500 lb. It is equipped with four rubber-tired wheels, two of which are of the swivel type.

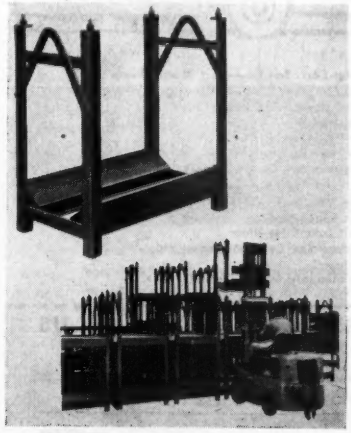
TRACTOR HYDRAULIC SHOVEL

NP6—Crawler type traction is now available on the Dempster-Diggster, a tractor hydraulic shovel and loader manufactured by Dempster Bros., Inc. It is also produced as an automotive

unit on rubber tired wheels. Known as Type "CR" Model 100, it features an hydraulic crowd and hoist principle. The photo shows the equipment ready to unload a one cu. yd. (heaped) bucket of hard chert after digging out a 15 ft. bank. Four interchangeable buckets of two types are available. The one and 1¼ cu. yd. (heaped) digging buckets, and the 1½ and two cu. yd. (struck) buckets for handling loose materials. The gross weight of the Diggster is 21,480 lb. It may be mounted on various makes of tractors.

STOCK RACK FOR COILS

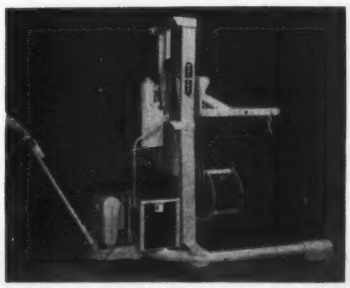
NP7—An all-steel stock rack for stacking and handling of coil steel or wire is available from the Palmer-Shile Co. Concave-shaped guards are designed to



permit the load to rest snugly in the rack. The structures are easily handled by fork truck or overhead lifting equipment and are built to any size and load capacity required.

STEEL MILL BEARING REMOVER

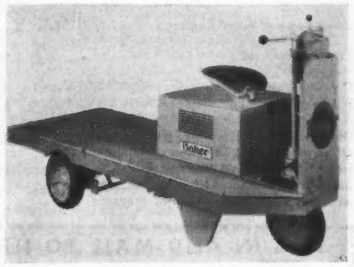
NP8—A high-lift hand-guided electric truck, designed for removing and replacing the bearings and pod from larger cold roll steel mills and the entire roll from smaller mills, has been an-



nounced by the Moto-Truc Co. Features include a 4000-lb. capacity 66-in. lift; and a three-ft.-long boom. Push buttons in the handle regulate hydraulic lifting and lowering. The model shown has 44-ins. between outriggers, which may be varied. The pod and bearing are pictured handled together although they are ordinarily handled separately. Rollers on each side of the pod holder are free for revolving the unit to enter the key shaft, so that the truck acts as a positioning unit as well. According to the manufacturer, a 2500-lb. bearing can be removed and replaced in 90 seconds by one man. It is further stated that the forks can be easily installed and the vehicle used as a conventional stacking-type high lift truck.

POWERED PLATFORM TRUCK

NP9—A platform-type truck which can be adapted to special transporting applications, less-than-carload freight handling and other material handling tasks is offered by the Baker Industrial Truck Division of The Baker-Raulang Co. Known as the Baker Hustler, Type PB 2000-lb. platform truck, this lightweight unit is designed for such applications as a welding wagon, plant maintenance truck, personnel car, millwright utility truck, pipefitter's bench, elec-



trician's service car, and as a package wagon in warehouses, department stores, wholesale hardware establishments, etc.

It has an overall length of 104¾″, and is battery operated, with the battery box located to one side of the platform to permit the carrying of long loads on the opposite side. A formed and padded

seat is mounted on the cover of the recessed battery box. A load area of 20 sq. ft. is obtained with the truck's 56-in-long platform which is 18¼ in. above ground level for easy loading. The Hustler is equipped with a master reversing controller interlocked with line contactor, affording three speeds forward plus reverse. Power circuit is made and broken by a contactor; deadman control and safety interlock is obtained through a foot switch. The truck can be started only with the foot switch closed and the controller in first speed, an important safety feature. Steering is accomplished by means of a horizontal tiller which is coupled to the steering wheel by vertical steering post.

JACK-SKID SYSTEM

NP10—The Nifty Lifter is a simple jack with a positive latch, and equipped with sturdy wheels and handle. The semi-live skid is steel bound and has hardwood topboards. Both are manufactured by the Barrett-Cravens Co. Wheels for the lifter and skid are equipped with anti-friction bearings for the easy movement of heavy loads, and may be steel or rubber-tired. To move a skid load, the operator wheels the lifter under the lifting horn of the semi-live skid. A downward stroke of the handle engages the positive latch and lifts the two skid legs clear of the floor. To raise a load of 2500 lbs. requires only 70 lbs. effort. To lower the skid, the towing handle is lowered toward the floor. The operator then pushes the thumb handle release and, by raising

the handle, controls the descent of the skid. A spring handle holdup keeps the handle of the lifter off the floor when not in use. Skids are available in load capacities up to 5000 lbs. with a variety of super-structures: standard platform as illustrated, stake, end rack, box and shelf types.

They're Piling Up Savings WITH "POWER-PACK" EXPENDABLE PALLETS

Manufacturers and shippers are moving more goods in less time—for less money, with expendable POWER-PACK pallets. Many of these users are reporting labor-savings of from 55 to 75 per cent! POWER-PACK pallets are made of fibreboard . . . yet each post alone will support more than 3,000 lbs.! These remarkable pallets are so light, and cost so little they may be discarded after one trip. For *extra* savings on freight charges, POWER-PACKs are made, under license, by container corporations near you. If you'd like more detailed information about the pallet that's revolutionizing materials handling, send in the coupon today.

LIST OF "POWER-PACK" LICENSEES . . .

Union Bag and Paper Corp.
—New York, Chicago, Trenton, Savannah
The Ottawa River Paper Co.
—Toledo, O., Flint, Mich.
The Corrugated Container Co.—Columbus, O.
Western N. Y. Cont. Corp.—Lockport, N. Y.
A. B. C. Box Co.—Minneapolis, Minn.
Des Moines Cont. Co.—Des Moines, Ia.
Ottumwa Shipping Containers—Ottumwa, Ia.
Iowa Fibre Box Co.—Keokuk, Ia.
South West Box Co.—Sand Springs, Okla.
Arkansas Box Co.—Fort Smith, Arkansas
Southwest Corr. Box Co.—Fort Worth, Texas
Midland Container Corp.—Milwaukee, Wis.
Industrial Container & Paper Corp.
—Chicago, Ill.
Central Fibre Products Co.
—Quincy, Ill., Hutchinson, Kansas
C. F. Downey Box Co.—N. Kansas City, Mo.
Inland Paper Box Co.—Denver, Col.
Pomeroy Mfg. Co.—Vincennes, Ind.
Western Paper Products Co.
—Salt Lake City, Utah
The Eastern Box Co.—Baltimore, Md.
The Tallap Co.
—Minneapolis Minn., Oshkosh, Wis.

FILL IN AND MAIL TO NEAREST LICENSEE, OR TO US

CO. NAME_____

ADDRESS_____

CITY_____ STATE_____

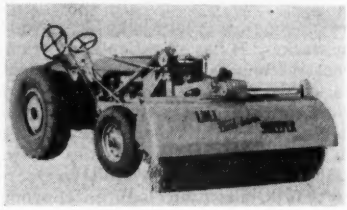
YOUR TITLE_____

ADDISON-SEMMES CORP., Racine, Wis., Dept. 120-B

Patent No. 2,432,295

FLUID DRIVEN SWEEPER

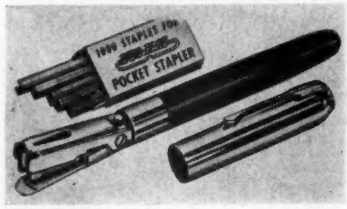
NP11—A fluid driven sweeper has been announced by the Lull Mfg. Co. Besides the usual street sweeping tasks, the unit can handle snowfalls up to 24 ins. and cast snow over wide areas. The broom is adjustable from 32 degrees right to 32 degrees left, or straight across. The



application of fluid power is regulated by an oil valve control. All driving mechanisms run on heavy-duty, anti-friction bearings which are sealed against dirt and grit. Without leaving the tractor seat, the operator can start or stop the broom and raise and lower it. Control of the broom is completely independent of tractor operation. The sweeper can be installed or removed quickly and easily, without altering or dismantling the tractor, it is said. Brooms of three different widths are interchangeable on the same sweeper frame.

PEN-SIZE STAPLER

NP12—The Duo-Fast Pocket Stapler, manufactured by the Fastener Corp. is

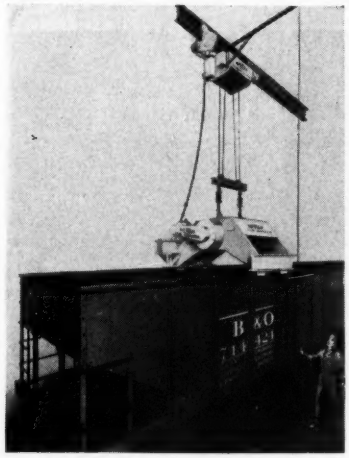


five ins. long, weights only 1½ ounces, and holds 100 staples. It will fasten

up to 12 sheets of paper, according to the manufacturer. It is designed for use by shipping clerks for stapling reports, bills of lading, receiving slips, etc., and is carried in a pocket in the same manner as a fountain pen.

CAR SHAKER

NP13—American Engineering Co. has announced a new Lo-Hed Car Shaker. It is offered in combination with a Lo-Hed five-ton, twin hook hoist and controls or with a single hook five-ton hoist and controls. The equipment is also available separately for use with exist-



ing hoisting equipment. The unit is designed for emptying cars in a matter of minutes by one man and may be employed for unloading coal, ores, sand, cinders, rock, coke, slag, wood chips, limestone, clay or any other loose materials from open hopper-bottom type cars. The hoist is equipped with a slack-line switch. The shaker cannot be operated until the shaker is in position; conversely, the motor trolley cannot be started when the shaker is in operation. When a hand-geared trolley hoist or bolt suspension type is selected, interlocking trolley control is omitted.

WOOD BOX PRINTING MACHINE

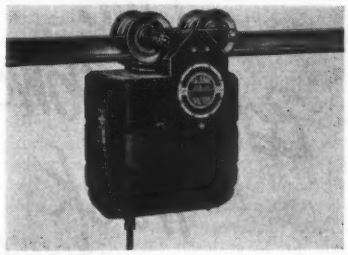
NP14—This wood box marker, manufactured by the Industrial Marking Equipment Co., Inc., automatically imprints wood boxes as fast as they can be pushed through the printing device.

It uses interchangeable rubber type, has a built-in self-inking reservoir and will handle various sizes of wood boxes. The marker can be adapted to a conveyor line. According to the release, the equipment is designed for better and increased marking production over manual methods. For further information, use the card bound into this issue.

CIRCLE NUMBERS ON THE CARD AND MAIL!

FLUID TRACTOR FOR HOISTS

NP15—The Calabar Corp. is offering a Fluid Tractor for propelling electric or hand hoists on monorails and cranes. It is controlled by a magnetic reversing contactor and pendant push-button, and is available with either ½ or ¾ H. P. 3-phase electric motor operating at 1750



R. P. M. It fits any track with flat or tapered tread ranging from two ins. minimum to 5½ ins. maximum. The

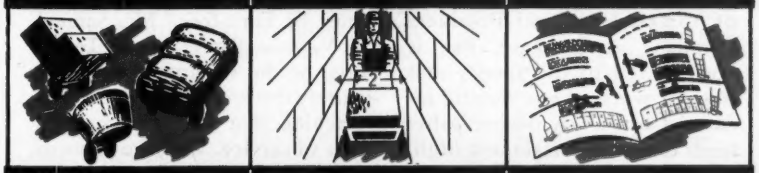
AMERICAN
PRESSED-STEEL
HAND TRUCKS

...stay on the job for less than a penny a day!

LOW INVESTMENT COST! Thousands of rugged "American" Hand Trucks are rolling along after ten or more years of hard service. Original cost is only a fraction-of-a-cent per day!

LOW OPERATING COST! Put any man in your plant behind an "American" Hand Truck and you will find he can handle any job efficiently—and safely!

LOW MAINTENANCE COST! "Americans" need practically no attention. Pressed-Steel bolted construction keeps maintenance costs down. Sealed-in ball bearings keep grease in, dirt out!



MAXIMUM FLEXIBILITY! The perfect balance achieved by the "American" design gives greater flexibility in moving materials of any size or type!

2-FOOT AISLES OKAY! "American" Hand Trucks can snake through tight spots and roll down narrow aisles. A 2-foot clearance is all that is needed for most "Americans"!

50 TYPES AND SIZES! What type of materials do you want to move? There's an "American" Hand Truck to do the job—every one equipped with the famous American "Steelite" Wheels!

Wherever materials are moved, "American" is a familiar name. These red-enameled, pressed-steel trucks are respected for efficient material handling at lowest cost. They work for pennies—but they save you dollars. Write for the latest "American" Hand Truck Bulletin showing 50 styles and sizes built to handle any job. Stocked by distributors everywhere.

The American Pulley Company

4290 WISSAHICKON AVE., PHILADELPHIA 29, PA.

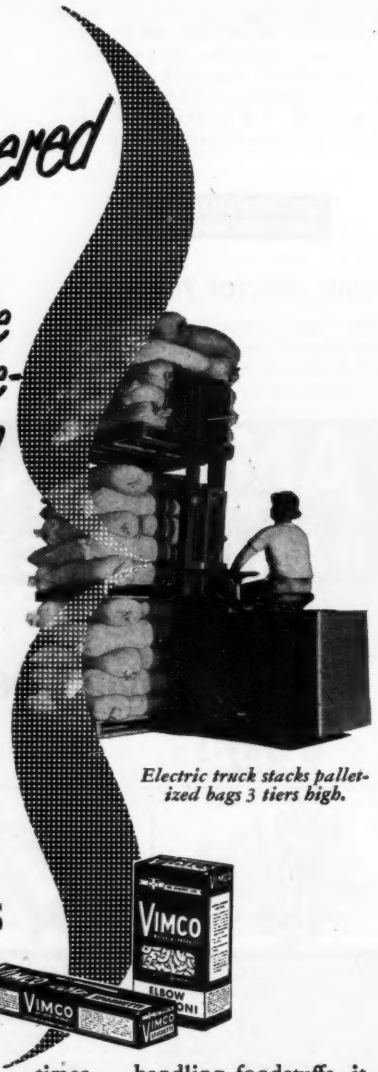
AMERICAN PRESSED-STEEL HAND TRUCKS

for efficient material handling at lowest cost!

One Battery-Powered Truck

Triples warehouse capacity with one-third reduction in floor area!

Saves $1.00 per ton in unloading and storing . . . Provides contamination-free handling for VIMCO MACARONI PRODUCTS COMPANY



Electric truck stacks palletized bags 3 tiers high.

The entire production program of Vimco Macaroni Products Company at Carnegie, Pa., is now geared to the speedy and efficient work of *one* electric industrial truck. By tiering pallet loads of raw material three-high, useful storage space was tripled, production space was increased, and need for a new warehouse was eliminated.

Two men and a battery-powered truck unload an 80,000 lb. car of sacked semolina in four hours. A saving of $46.00 per car totals almost $1,500 per month *in car-unloading alone.*

Used in loading and unloading, storing, production movement and maintenance work, this one truck *must* be available at all times . . handling foodstuffs, it must be fume-free. Mr. Samuel T. Viviano, Secretary and Treasurer of the Company, says, "A battery truck is the only powered machine that will give us this type of service. We have come to rely on the work done by this truck to such an extent that we couldn't operate without it."

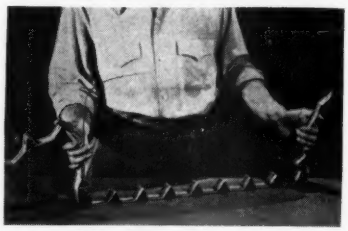
Another example of electric truck *dependability* and *cleanliness* helping industry—while providing material handling *at lowest cost per unit moved.* This criterion, rather than initial investment, explains why so many industries prefer battery-powered trucks!

THE ELECTRIC INDUSTRIAL TRUCK ASSOCIATION
3701 NORTH BROAD STREET, PHILADELPHIA 40, PENNA.

unit moves loads up to five tons forward or backward at speeds ranging from 50 to 250 ft. per minute. It is totally enclosed in a dust-proof aluminum alloy housing and is equipped with anti-friction bearings operating in an oil bath.

PACKING MATERIAL FOR FLAT FRAGILE PRODUCTS

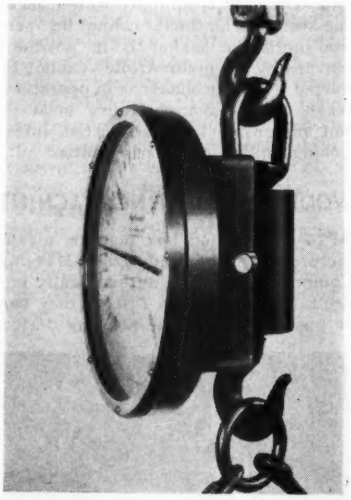
NP16—The picture above shows a material for packing and shipping glass, mirrors, sensitive metal and plastic plates and other flat fragile products. Known as Sus-Rap, the product is available from the Sus-Rap Sales Co. The



new suspension wrap consists of three layers of jute or kraft which impart both horizontal and vertical support. The material is supplied in continuous rolls and is wrapped around the product which fits into notches in the V-shaped extensions.

HYDROSCALE MODELS

NP17—Hydroway Scales, Inc., has added several new models to its line of hydraulic crane scales. The new models round out the line to provide 8", 12", 24" and 30" diameter dials in varying capacities up to 25 tons. The 24" and

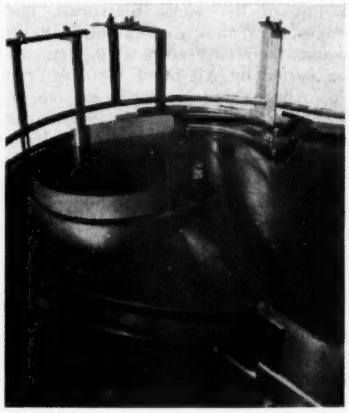


30" dials offer more accurate reading, especially in the larger capacities and adapt the scales to specialized applications. They are simple in construction and function on the static pressure principle. Primary application of the units is weighing of stock and materials on the spot without transporting to weighing stations. Compact design of the

scale affords clearance past columns, etc., and conserves hoist capacity and headroom. The secondary scale application is the protection of equipment against overloading.

ROTARY UNSCRAMBLING TABLE

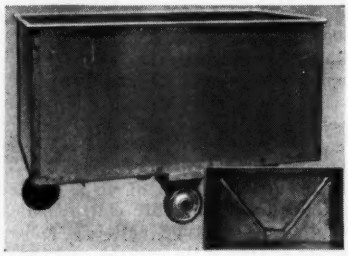
NP18—Island Equipment Corp. has announced the latest improvement which is standard on all models of the Styl-O-Matic Rotary Unscrambling Table. This improvement is a spring steel di-



verter which is designed to insure that each item is delivered to the discharging conveyor. A case of bottles, jars or containers is placed on the table and the carton lifted off. Each item is then automatically discharged to the conveyor in single file, without manual assistance. The table top is adjustable 32 to 38 ins. with a standard disc of 36 ins. Minimum floor space required is 24 ins. square.

DIE HOUSE TRUCK

NP19—New design features have been incorporated in a dye house truck, developed recently by KIF Industrial Fabricators. One of the main factors considered during its development was

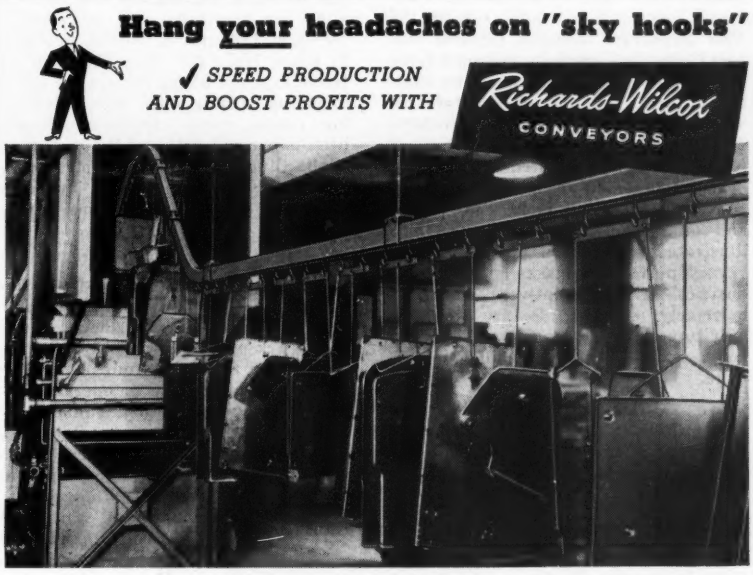


a method of "keeping worker's feet dry". The new truck is constructed so that drainage funnels divert washing and dyeing liquids through a central outlet away from operator's feet. The danger of tearing wet in-process fabrics in the vehicle is offset by a channel-protector. The truck is constructed with solid stainless steel sides. It is made in sizes to suit a variety of washing, dyeing and liquid-handling operations and is equipped with heavy-duty roller bearing wheels and casters. For further information, use the card bound into this issue.

CIRCLE NUMBERS ON THE CARD AND MAIL!

ALUMINUM BRIDGE PLATES

NP20—Aluminum bridge plates are available from Tom Palmer Aluminum Products. Rust and corrosion resisting properties under normal atmospheric conditions mean that no painting or other maintenance is necessary for protection. It is further stated that the aluminum alloy used does not become brittle, thus will not crack through long continuous use. The material is non-sparking and may be safely employed in handling explosive or inflammable materials. The plates are made of a rolled plate and reinforced with sidebeams and stiffened laterally by crossbeams mounted below the plate. The sidebeams, usually rolled channel sections, extend both above and below the plate in the center sections and are cut off flush with the underside of the plate on the ends which overhang the dock and the car. The traffic surface is covered with a non-skid coating which is easily replaceable as required.



Stove parts entering degreaser on R-W ZIG-ZAG Continuous Power Conveyor.

Been wondering what to do about rising manufacturing costs? Even with plant personnel working at top speed, is your production rate still a problem? Your answer could easily be conveying equipment!

In today's highly competitive markets, plants with R-W Conveying Equipment are operating *more efficiently, more profitably.* Yours can, too!

R-W Conveyors Serve *All* Industry—Richards-Wilcox Conveyor Equipment is a major part of production and processing lines in every imaginable industry . . . increasing efficiency, cutting costs in the handling of light, medium and heavy materials. Why not have an R-W Consultant show you how conveyor equipment, engineered for your production requirements, can step up efficiency and boost profits. Just write or phone the nearest R-W branch office for free consultation—there's absolutely no obligation.

R-W CONVEYORS FOR ALL JOBS

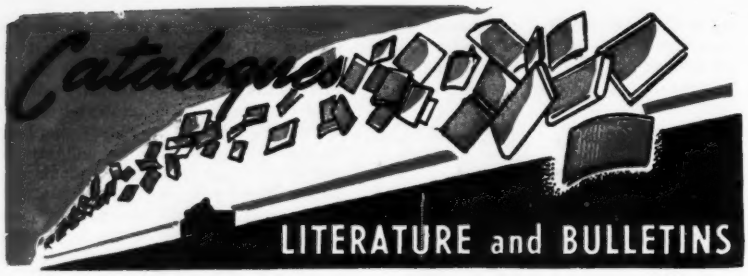
"ZIG-ZAG" Continuous Power Conveyors — Unique powered chain conveyor with extreme flexibility. Designed especially for carrying light loads within confined areas—handles products through degreasers, dip tanks, spray booths, ovens, etc.

"LOCK-JOINT" Trolley Track OveR-Way Conveyors — Designed for handling light to medium loads, and maximum flexibility. Maximum capacity 3,000 lbs.

"TRU-TRED" Steel Beam OveR-Way Conveyors — For heavy duty handling and electric hoist service with minimum superstructure—eight different track sizes. Maximum capacity 8,000 lbs.

1880 1950
Reg. U. S. Pat. Off.
OVER 70 YEARS

Richards-Wilcox Mfg. Co.
"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U.S.A. Branches in all principal cities



The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Ball Bearings for Conveyor Systems . . . A recently published 16-page publication, "Ball Bearings For Conveyor Systems", is available from the New Departure Division, General Motors Corp. It is specially designed to be of assistance to material handling engineers, plant superintendents, foremen and operating personnel. The brochure describes and illustrates five types of self-sealed and "lubricated-for-life" ball bearings designed for belt and trolley conveyors, foundry mold car wheels, and other equipment. The pages are illustrated with action photos of conveyors performing tasks in many industries. The descriptive data, while extremely detailed, is presented in easy-to-understand language. For your copy, mail the card bound into this issue.

26—Casters . . . A catalog supplement, describing Series 40 "cold-forged" casters, has been released by The Rapids-Standard Co., Inc. The illustrated supplement lists specifications of the various diameters and types of wheels available, whose load capacities range from 140 to 400 lb. It also details the "cold-forged" process.

27—Fork Trucks . . . Electric and gas-electric fork trucks are the subject matter of a 16-page bulletin issued by Lewis-Shepard Products Inc. The brochure covers the complete line of "SpaceMaster" electric fork trucks with specification and dimensional drawings of each standard model. Engineering and operational features are described and illustrated together with installation photos. A portion of the publication is devoted to various attachments which can be readily mounted on the trucks to convert them into special-purpose handling equipment. Attention is also given to such fork-truck accessories as batteries, chargers, cushion tires, etc.

28—To Cut Inventories . . . A material handling manual that offers 355 ways to cut inventories has been prepared by Aerol Co., Inc. This manual has drawings and illustrations on all of the company's products, showing how each is designed to solve a particular material handling problem. Dimensions, load ratings and code numbers are tabulated for quick and easy reference.

29—Industrial Lifts . . . Hydraulic and electric-powered platform-type lifts for elevating, loading and material handling are illustrated and described in "Modern Lifting", a booklet published by Globe Hoist Co. More than 100 different types of lifting devices are shown including loading dock lifts, self-leveling ramps, ramp eliminators, bridge lifts, paper roll lifts and the company's Wall Climber. In addition, various types of hydraulic power cylinders, platforms and control systems are described.

30—Hints on Fork Truck Operation . . . The Yale & Towne Mfg. Co. offers to material handling engineers, industrial truck maintenance men and truck operators a two-color, four-page folder containing instructions on operating gas trucks safely and with a minimum of wear to moving parts. A total of 25 hints is given, each illustrated with a drawing. The bulletin is divided into four sections. Section I, "Engine Starting", contains five hints; section II, "Starting The Truck," contains six suggestions; section III, "Running The Truck", five tips; and section IV, "Caution", 10 suggestions. The bulletin is also designed to be of value in plant training courses.

31—Tire-Mounted Crane . . . The Silent Hoist & Crane Co. has issued Bulletin 73 on its five-ton capacity, front-boom tire-mounted crane. Numerous pictures show the equipment loading rail cars and trucks and engaged in other yard handling operations. Loads include large pipe sections, crates and bagged material. Additional descriptive matter covers the crane's application to inside duties, including moving machines and machine-components, stacking in warehouses, and plant maintenance duties. The machine is equipped with pneumatic traction and steering wheels and is said to be able to travel grades up to 10 per cent under load.

32—Drive Backstop . . . A catalog page, available from the American Pulley Co., contains information on its American Backstop. This is a ratchet-type device which automatically prevents "backing-up" or "running-away" of inclined conveyors, bucket elevators and similar elevating equipment in the event of power interruption, overload cut-out or failure of the prime mover. The unit is a standard stock item with interchangeable tapered bushings and is easily installed. The backstop is mounted in any position on the head shaft of conveyors and elevators; upon reversal, it engages the ratchet and locks the shaft in place. When forward power is again applied, the pawl pulls out of the ratchet teeth. The catalog page contains photos, detailed descriptive data and engineering drawings.

33—Many Types of Equipment . . . A line of lift jacks, platforms, floor trucks, bins, tanks, racks and skids are exhaustively covered in a 46-page catalog issued by All Steel Welded Truck Co. Approximately 100 items are pictured and described and keyed for easy ordering. A wide variety of styles of the different types of equipment are designed for material handling engineers and purchasing agents who need specialized products for particular requirements. Many items are extensively described with complete specifications and optional accessories.

34—Highway Truck Attachments . . . A 42-page manual on the Load Lugger system is offered by the Brooks Equipment & Mfg. Co. The company's system involves the use of a number of detachable truck bodies with each Load Lugger-equipped truck. The unit is an hydraulic hoist and frame which is easily installed on any standard truck chassis. It is designed to pick up the loaded body, place it on the truck for transport, and dump, spread or set down the load at destination. All operations, except attaching the body chains to the Load Lugger booms, are automatic with the driver controlling all operations. The manual shows seven models plus many application photos. Subjects include operating and construction features, how to install, and a list of user companies where the equipment may be seen in action.

35—New Fork Truck . . . Eight pages of model views, action photographs and descriptive text comprise catalog number 1135, covering the new Hyster Co.'s 2000-lb.-capacity lift truck (Model 20). More than 70 basic changes have been made in the compact machine, which has been designed for general industrial material handling. Chief among the new features are cooler operating temperature resulting from alterations in design, and installation of an air-cooled engine; larger, long-life clutch; standard automotive-type battery; double-acting hydraulic tilt control; and easier steering. Other features include better braking power; increased speed; greater operator comfort; larger gasoline tank; and easy accessibility of parts for servicing. Specifications are included. For further information, use the post card bound into this issue.

36—Bulk Conveying Systems . . . The subject of unloading and conveying dry

pulverized materials is treated in a two-color booklet which will be sent by the Fuller Co. This very detailed brochure contains drawings, photos and explanatory text of the many applications of the equipment. Additional pages are devoted to data on components such as valves, aeration units, samplers and remote-control unloaders. Installations covered include conveying pulverized phosphate rock, unloading and conveying from hopper-bottom rail cars to mixing plants, conveying to storage and bulk-car loading. Such other subjects as conveying clay and silica in a steel foundry, loading and unloading ships, blending and conveying dry fly ash are also treated. This publication is a valuable addition to any plant library.

CIRCLE NUMBERS ON THE CARD AND MAIL!

37—Mobile Cranes . . . The Thew Shovel Co. has available a two-color folder titled "Lorain Jack-of-All-Material-Handling." It shows the application of mobile power cranes to many kinds of material handling jobs in industry. Eleven illustrations of models at work in both large and small plants show how specific problems have been solved. Magnets, clamshell buckets, hook blocks and special slings and grabs are illustrated. Rubber-tired Moto-Cranes and Self-Propelled Lorains and

(Turn to page 77)

OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates: for "Positions Wanted" $4.00 minimum, limit 25 words. For all other classifications $4.50 minimum for 25 words, each additional word 15c; boldface type or all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box address count as five words. All insertions are payable in advance.

FOR SALE

1—Elwell Parker Used 4000# Stand Operation Electric Platform Truck, Type WH4 Bed 72" L x 40" W. 30 Cell Edison Battery.
1—Yale & Towne Used 4000# Stand Operation Electric Platform Truck, Model K23-4 Bed 72" L x 42" W. 30 Cell Edison Battery.
1—30 Cell Used Edison Battery.

SAM BECKER & SONS
P.O. Box 332 Elyria, Ohio

Clark 4000 lb. Gasoline Fork Lift Truck —12' lift—New in 1947____$1750.00
Clark 4000 lb. Gasoline Fork Lift Truck —7' lift—New in 1946_____$1550.00
Clark 6000 lb. Electric Fork Lift Truck —12' Lift — with two Edison batteries _____$2350.00
Clark 4000 lb. Platform Gasoline Lift Truck _____$ 600.00
Crescent Platform Lift Truck—3000 lb. Model LDLF—Electric ____$ 350.00
Crescent Electric Tractor — Model NTW _____$ 350.00
Ingersoll-Rand Air Hoists — 2000 lb. _____$ 150.00

BALCHER MACHINERY CO.
1884 S. Compton Road
Cleveland Heights 18, Ohio
Phone: Fairmount 1186

EQUIPMENT WANTED

DOLLARS FOR INFORMATION

We will pay 5% commission on all leads furnished to us, which result in our purchase of used handling equipment, such as fork trucks, pallet trucks, cranes, etc. Inform us of such equipment for sale and we will pay you commissions equal to 5% of purchase price if equipment is purchased.

A. & A. MACHINERY CORP.
1267 Flushing Ave., Brooklyn, N. Y.

PERSONNEL WANTED

Sales representatives wanted Special Belt Conveyors, Stainless Steel. Food Conveyors. My methods produce orders. The A. S. Tomlinson Co., 120 Liberty Street, New York 6, N. Y. Barclay 7-5816.

Correspondence Invited

from Alert, Experienced, Well Established

DISTRIBUTORS OF MATERIALS HANDLING EQUIPMENT

Interested in Representation of a Distinguished Line of Heavy-Duty

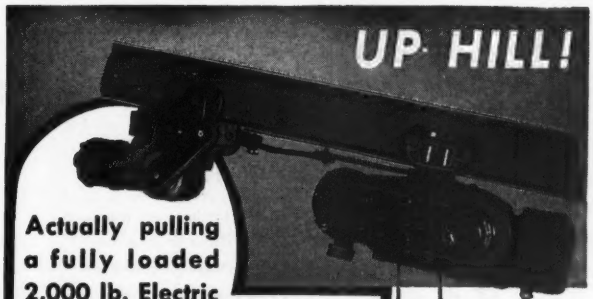
MOBILE SWING-BOOM CRANES
FORK LIFT TRUCKS

Inquiries Treated in Strict Confidence

•

KRANE KAR, KARRI-GO INDUSTRIAL CRANE, LIFT-O-KRANE, STEVE-KRANE, MOTOR TRUCK CRANES, CAR PULLERS

SILENT HOIST & CRANE CO.
888 63rd STREET, BROOKLYN 20, N. Y.



UP HILL!

Actually pulling a fully loaded 2,000 lb. Electric Hoist up a 5% grade . . . .

New Trojan TRACTOR

The *TROJAN TRACTOR* can be applied to *TRAVEL* . . .

1. Present hand travelled monorail hoists.
2. Existing hand travelled crane bridges.
3. Monorail conveyor lines.
4. Open and Close garage and hangar doors.

You probably have slow, hand propelled units which the Trojan Tractor can move by power,—faster and economically. Let us know what they are; we will give you the details.

DETROIT HOIST & MACHINE CO.
8203 MORROW ST.
DETROIT 11, MICH.

IT'S NEW!
MATERIALS HANDLING

"THE TRAINING COURSE OF THE YEAR"

— Now Available —

A comprehensive and authoritative home study course in the biggest opportunity field in industry. Write us now for complete information.

LINCOLN EXTENSION INSTITUTE, INC.
1401 West 75th Street Cleveland 2, Ohio

SERVING INDUSTRY'S TRAINING NEEDS FOR OVER 27 YEARS

A SOLUTION to New York's traffic congestion was offered recently by Harold Von Thaden, vice president of Hewitt-Robins Inc., before the 70th Annual Meeting of the American Society of Mechanical Engineers. He suggested mechanical belt conveyors below the city's streets to handle both people and cargo. To move cargo in this manner, Von Thaden said, would rid the city of at least 25 per cent of the truck traffic that congests mid-town. Such a system could operate on a charge per tonnage basis, paid for by the users.

THE National Directorate of the Society of Industrial Packaging and Materials Handling Engineers has decided to hold its Fifth Annual Industrial Packaging and Materials Handling Exposition in Convention Hall, Philadelphia, in late September or early October, 1950. This was announced by R. F. Weber, International Harvester Co., board chairman. The annual Packaging and Materials Handling "Short Course", held in conjunction with previous S.I.P. M.H.E. Expositions will be continued in Philadelphia. The 1950 "Short Course" will be conducted under auspices of Community College, Temple University. H. C. Rountree, dean of the College, will develop the instructional program. This is the first time that the exposition has been scheduled for the East.

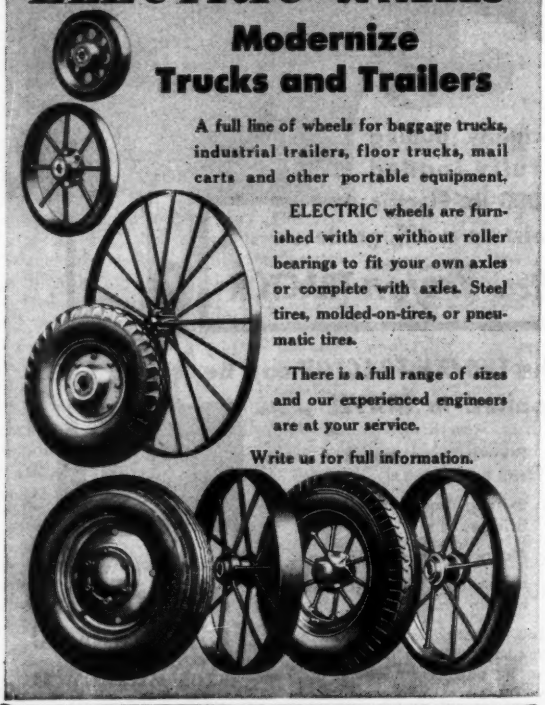
ELECTRIC WHEELS
Modernize
Trucks and Trailers

A full line of wheels for baggage trucks, industrial trailers, floor trucks, mail carts and other portable equipment.

ELECTRIC wheels are furnished with or without roller bearings to fit your own axles or complete with axles. Steel tires, molded-on-tires, or pneumatic tires.

There is a full range of sizes and our experienced engineers are at your service.

Write us for full information.



ELECTRIC WHEEL CO., 2931 Spruce, Quincy, Ill.

CESCO DUMPER HANDLES
BAGS, DRUMS AND BULK

MULTI-PURPOSE DUMPERS for dumping bags, bulk or drums, as well as single-purpose types save handling time and reduce accidents. Dumping heights range from 5 to 12 ft. Special sizes made on order. Have lifting capacity of 500 lbs.; handle up to 100 loads per hr. ½ H.P. motor controlled by push button. Immediate delivery. Write for 8-page catalog.

DEALERS IN ALL SECTIONS

COLSON EQUIPMENT & SUPPLY CO.
1321 WILLOW STREET • LOS ANGELES 13, CALIFORNIA

FREE LITERATURE . . .

(Continued from page 75)

crawler mounted machines are pictured working under various conditions.

38—Steel Strapping for Packaging and Car Bracing . . . A pamphlet issued by the Acme Steel Co. Four charts show the correct placement of strapping around rectangular, square, flat containers and export boxes. It is stated that steel strapping is designed for increasing container strength, reducing damage claims, reducing risk of pilferage and increasing customer goodwill. Some of the points made in the publication are: if a single strap is used it should be placed around the center of the container; two or more straps should be used if the contents exceed a weight density of 100 lb. per sq. ft.; when two or more straps are used the distance between the end straps and the ends of the box should be approximately ⅓ of the box length. Other data given are of interest to those responsible for packaging, handling and shipping functions.

39—Material Handling Equipment . . . Lewis-Shepard Products, Inc. offers an 86-page catalog on its line of material handling equipment. The literature is divided into five parts: fork trucks; lift trucks; stackers and cranes; hand lift trucks and floor trucks, and storage racks and skids. Each section contains photos of complete units and components. General operating and descriptive information is available with each photo.

40—Belt Conveyors, Bucket Elevators . . . Its latest publication, Catalog No. 146, is offered by Stephens-Adamson. Its 125 pages are crammed with pictures and data on the company's line of belt conveyors, bucket elevators and accessories. Sections cover such topics as belt conveyors and typical arrangements; belt conveyor design; belt rollers, idlers and trippers; and numerous types of rubber, cotton, duck and metal belting. Pulleys, magnetic separators and take-up devices are also pictured and discussed. Specialized types of belts for particular operations and many application problems are treated. Approximately 15 pages are devoted to conveyor installations. The same exhaustive treatment is given bucket elevators. This publication is designed particularly for personnel responsible for any phase of conveyorized material handling.

41—"One Wheel Shay" . . . The Shaylow Co. has issued a catalog sheet showing two of its all steel barrows. Both models are pictured together with specifications and important features.

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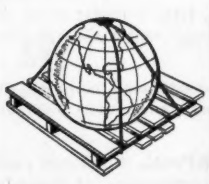

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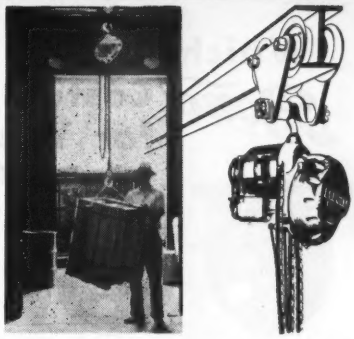

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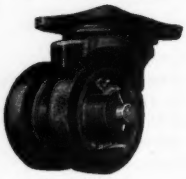

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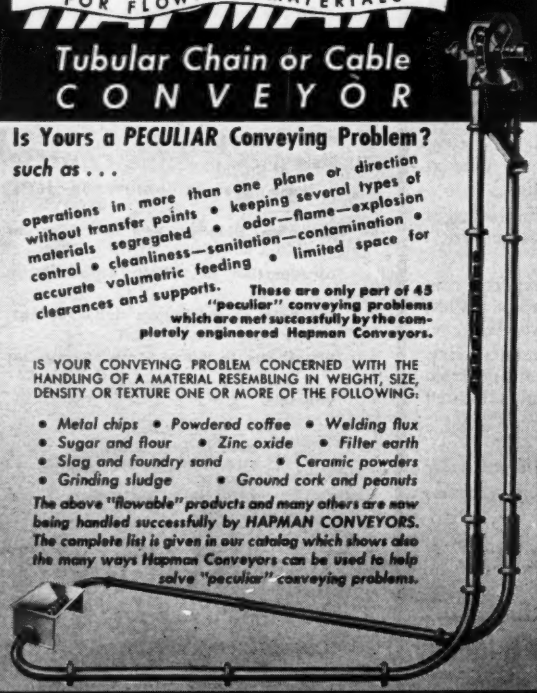

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- *Sugar and flour* • *Zinc oxide* • *Filter earth*
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- *Grinding sludge* • *Ground cork and peanuts*

The above "flowable" products and many others are now being handled successfully by HAPMAN CONVEYORS. The complete list is given in our catalog which shows also the many ways Hapman Conveyors can be used to help solve "peculiar" conveying problems.

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Literature Available From Advertisers In This Issue

(Check corresponding numbers on the enclosed card for the free literature listed below).

A-1. TOWMOTOR CORP. "Handling Materials Illustrated" is the title of a publication containing application reports on the company's fork trucks. To get your free copy, mail the card bound into this issue.

A-2. A. B. FARQUHAR CO. is offering information on economies developed through the use of its conveyors for handling packages and bulk materials.

A-3. THE FAIRBANKS CO. Bulletin 21-31A gives data on various types of casters with plain, roller or oilless bearings, steel or rubber tired wheels.

A-4. GENERAL BOX CO. will send case studies of its wirebound boxes used in varied industries for shipping many types of products.

A-5. ACME STEEL CO. "Savings In Shipping" is the title of a publication which describes economies through the use of steel strapping.

A-6. MOBILIFT CORP. An illustrated folder contains information on the company's lightweight fork lift truck for use in crowded quarters.

A-7. STANDARD CONVEYOR CO. is offering Catalog FL-20 on its line of fixed and portable roller and belt conveyors and pneumatic tube systems.

A-8. BOND FOUNDRY & MACHINE CO. Catalog K-38 gives data on the company's line of stationary and swivel casters with single and double wheels.

A-9. COLSON EQUIPMENT & SUPPLY CO. will send an eight-page catalog illustrating and describing its equipment for dumping bags, bulk and drums.

A-10. EUCLID CRANE & HOIST CO. A publication gives information on air conditioned crane cabs designed to eliminate the danger from fumes and heat.

A-11. LINK-BELT SPEEDER CORP. Detailed data available on how its tire-mounted cranes may be adapted to many types of material handling operations.

A-12. THE B. F. GOODRICH CO. offers its Tire and Wheel Analysis Plan which aids in determining the correct size and type of tire for mobile handling equipment. Use the post card in this issue.

A-13. STREATOR-DEPENDABLE MFG. CO. A catalog contains information on the company's storage racks for use with cranes, fork and platform trucks.

A-14. LINCOLN EXTENSION INSTITUTE, INC., will send data on its comprehensive home study course on material handling.

A-15. SPEEDWAYS CONVEYORS, INC. Recently published literature gives construction details of its gravity roller conveyors.

A-16. WESTINGHOUSE ELECTRIC CORP., ELEVATOR DIVISION, offers "The Buyer's Guide For Freight Elevators." A comprehensive manual on efficient inter-floor service.

A-17. KWIK-MIX CO. Use the card in this issue to obtain data on the company's motorized wheelbarrow. It has power forward and reverse, among other features.

A-18. HAPMAN CONVEYORS, INC. Tubular chain and cable conveyors for transporting bulk materials are illustrated and described in a catalog.

A-19. BAKER-RAULANG CO. will send complete descriptive data on its Model FT fork truck with 3000 and 4000-lb. capacities.

A-20. ADDISON-SEMMES CORP. An illustrated publication describes many industrial applications of the company's expendable pallets.

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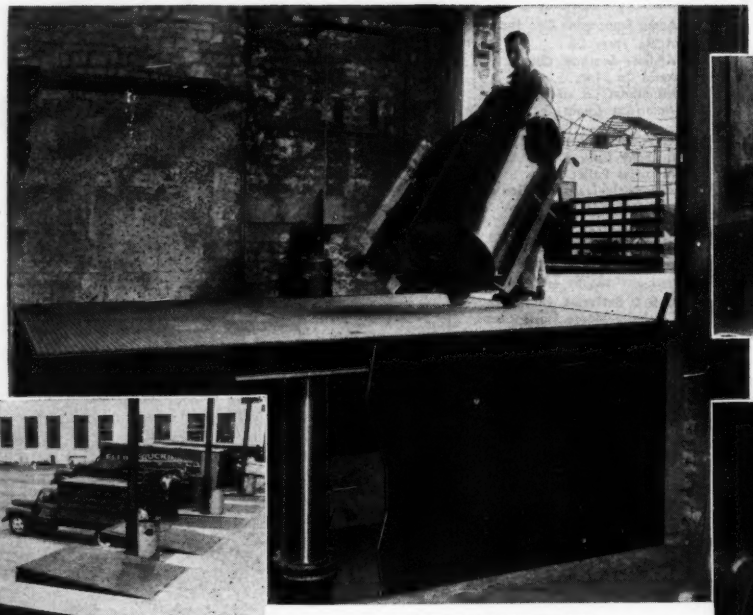
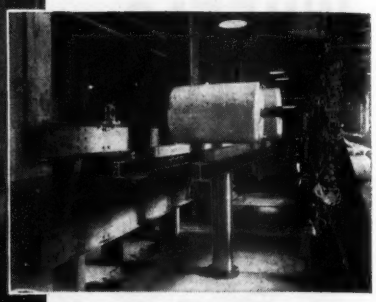
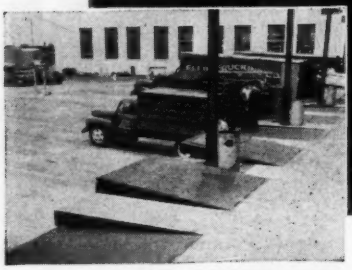


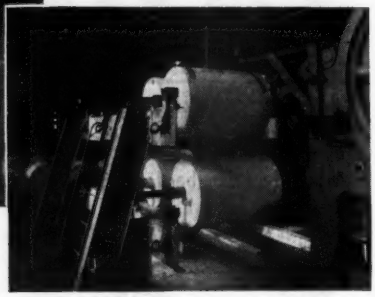
Single Post Platform Hoist



Wayne Lift in Newspaper Plant



Tilting Loading Dock Ramps



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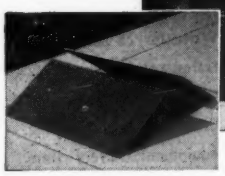

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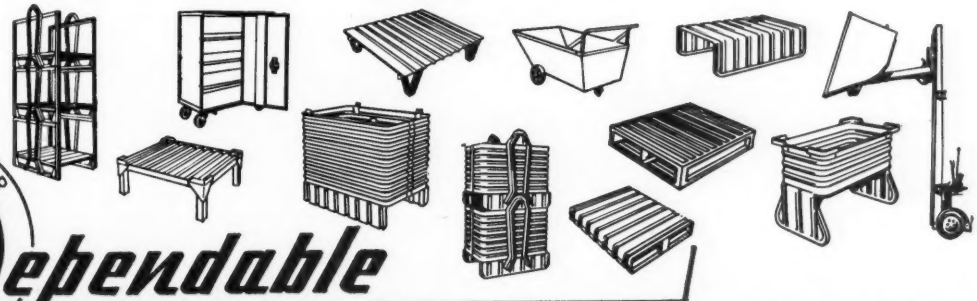

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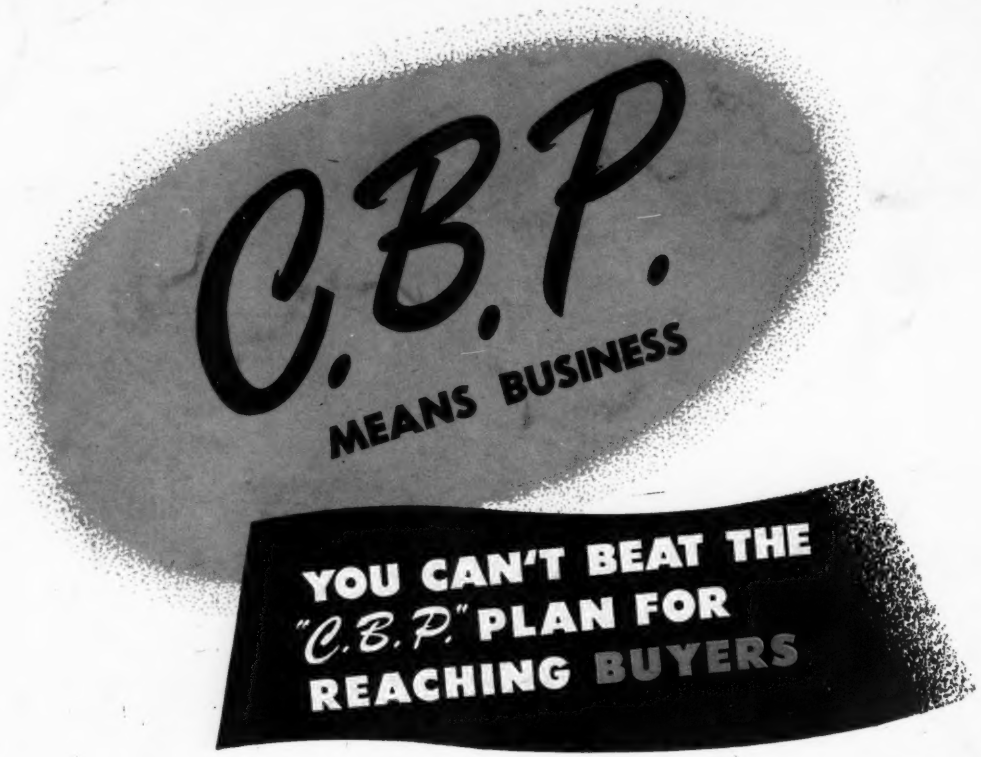

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